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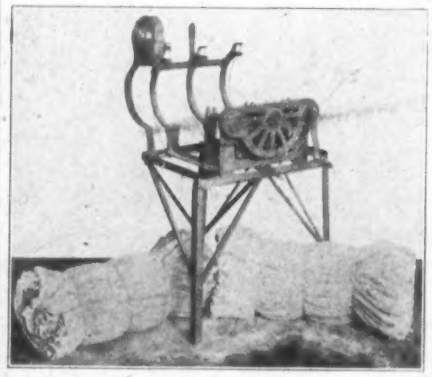
Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XVI | CHICAGO, ILL., SEPTEMBER 7, 1915. | Number 9.

WATER POWER IMPROVEMENT OF WHITE SALMON RIVER, NEAR PORTLAND, ORE.

(See Page 33.)



Bag Bundler

IT COUNTS 'EM AND BUNDLES 'EM

Saves Time
Eliminates Errors

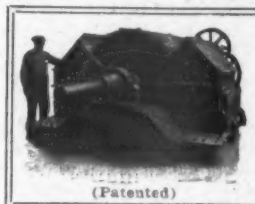
A few of our many customers say:

"It does the work of three men."
"Will shortly order three more."
"Would not take three times what we paid for it."
"It is a wonderful money saver."

Write for prices

The Faeberhill Manufacturing Co.
1392 East 40th St., CLEVELAND, O.

Agents wanted in every city. A side line for machinery and builders supply salesman.



(Patented)

"PENNSYLVANIA"

Hammer Crushers For Crushing and Pulverizing Lime, Limestone, Gypsum, Marl, Shale, Etc.

Main Frame of Steel, "Ball and Socket" self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.
No other hammer Crusher has such a big Safety Factor.

Pennsylvania Crusher Co.
New York PHILADELPHIA Pittsburgh

Clinton Mortar Colors

A guarantee of strength, permanence and economy
Used Successfully for 35 Years
Carried by all leading dealers.
CLINTON METALLIC PAINT CO., Clinton, N. Y.

Daily Capacity 7000 Barrels

ALPENA HURON MICH. — HURON PORTLAND CEMENT COMPANY

The Quality Cement of the Middle West

MORE THAN FIFTEEN YEARS OF SATISFACTION

THREE PLANTS: ALPENA — DETROIT — WYANDOTTE

HURON AND WYANDOTTE

Water and Rail Facilities Best Serve the Entire Middle West

EVERY BARREL TESTED AND GUARANTEED. SOLD BY THE BEST DEALERS EVERYWHERE

Main Office: 1525 FordBldg., Detroit, Michigan

Daily Capacity 3000 Barrels

WYANDOTTE PORTLAND CEMENT CO. — WYANDOTTE, MICH.

The Leading Concrete Cement

Beautiful Houses from Illinois to Massachusetts are Roofed with Reynolds Flexible Asphalt Shingles

A multitude of pretentious residences in a score of states are giving ample proof of the long-lasting surface of Reynolds Flexible Asphalt Shingles.

Every type of modern home can be protected and beautified, at lower cost, with these time-tried, weather-tested shingles. They withstand the ravages of driving rain, pelting hail hottest sun and heaviest snow without warping, cracking, splitting, curling or blowing off. Sparks cannot set them of fire. Long Exposure cannot dull their rich color. Adaptable to every style of pitched roof, and make possible unusual architectural effects, such as roll edges, thatch effects and rounded corners.

Reynolds Asphalt Shingles

Guaranteed for 10 years—will wear many years longer—Write for liberal agency proposition.

Rough-surfaced weather deflers made of crushed slate or granite securely embedded in pure Asphalt. Natural colors of garnet, red or gray-green which *never fade and never need painting.* We are the original makers of flexible asphalt slate shingles and tested them for ten years before putting them on the market, They are uniform in size—8 ins. by 12½ ins.—and are laid 4 ins. to the weather. Easily and quickly laid.

Let us send you a booklet showing photographs of modern houses roofed with Reynolds Asphalt Shingles. Write for a copy TODAY.

H. M. REYNOLDS ASPHALT SHINGLE CO.
Original Manufacturer Grand Rapids, Mich.
Established 1868 Members of National Builders' Supply Association

Wheeling Wall Plaster Co.

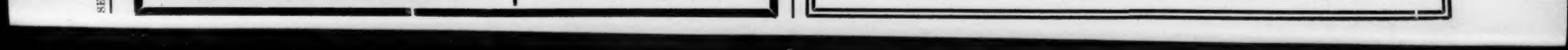
WHEELING, W. VA.

WHEELING WALL PLASTER UNIFORMLY GOOD

The Building Material Supply House of the Ohio Valley

CAR LOADS AND LOCAL SHIPMENTS AT WHOLESALE PRICES

Try Our Service



United States Custom House and Postoffice, Omaha, Neb
KALLOLITE PLASTER USED

Kallolite Cement Plaster

Was used on the Omaha Post Office, as well as many other

Government and Public Buildings.

Kallolite Cement Plaster is manufactured from the Purest Gypsum Rock found in the United States as shown by last Government Report.

CARDIFF GYPSUM PLASTER CO.

☛ Write for literature. FT. DODGE, IOWA

About Bakup and Partition Tile—

You ought to handle our 4x5x12 and 5x8x12 BAKUP TILE made from high-grade "Ohio" fire clay. We have a nice stock from which to make prompt shipments.

You can also get PARTITION TILE from us in sizes 3x12x12 up to 12x12x12.

One shipment from us will easily convince you that our material is what you ought to handle.

Write us for prices, etc.

THE
METROPOLITAN PAVING BRICK COMPANY
Canton, Ohio

? ARE YOU A LIME, CEMENT, STONE, OR SAND AND GRAVEL PRODUCER ?

Our Service is for You We are Engineers—Designers of Sand and Gravel Washing Plants—Manufacturers of Dull's Tubular Washer, Cableway Excavators, Screens, Conveying Equipment, Pulleys, etc.
See our full page advertisements in the previous and next issue of ROCK PRODUCTS AND BUILDING MATERIALS, or write today to our Chicago office.

The Raymond W. Dull Company, 1912 Conway Bldg., Chicago, Ill.

WELLER-MADE

Duplex Bin Gates

DELIVERY GATES
Undercut Overcut Duplex
Plain or Special
SCREENS :: ELEVATORS
Everything for handling Sand, Gravel and Crushed Stone
Weller Mfg. Co., Chicago

Undercut Bin Gates

SEWER PIPE
ALSO
Hollow Building Blocks
Face Brick
Other Fire Clay Products
Roofing Slate
Pearl Hydrated Lime
Builders' Specialties
PRICES ATTRACTIVE
HOUSTON BROTHERS COMPANY
PITTSBURGH, PA.

PLYMOUTH CLAY PRODUCTS CO.
FORT DODGE, IOWA

PLYMOUTH GYPSUM CO.
FORT DODGE, IOWA
Manufacture what is known as QUALITY BRANDS
ORDER A CAR AND BE CONVINCED
Plymouth Plaster & Finishes
Plymouth Wood Fibre Plaster
Acolite Cement Plaster (the long keeper)
Exterior Plaster
White Sand Float Finish
Best Bros. Keene's Cement
Sackett Plaster Board
Tiger Brand Hydrated Lime
Fireproof Gypsum Partition Tile
Write for advertising matter and prices
BRANCH OFFICES: 1015 Lumber Exchange, Minneapolis; 5040 St. Lawrence Ave., Chicago

NORTH-WESTERN PORTLAND CEMENT
NORTHWESTERN STATES PORTLAND CEMENT CO. PORTLAND NORTH-WESTERN CEMENT MASON CITY, IA.
The Reliable Portland Cement
A Portland Cement for the NORTHWEST
North-Western States Portland Cement Co.
MASON CITY, IOWA

MONARCH HYDRATED LIME
Dealers Everywhere—
YOU SHOULD HANDLE
Monarch Brand Hydrated Lime
Because it's the only perfect Hydrated Lime and you can get increased business by recommending it. It's uniform. It's fine. It won't "blister" or cause "chip cracks" and "crazing."
You get the benefits of Monarch advertising service. You get the business that others are getting now.
Don't neglect this chance to increase your lime sales.
Ask us how we can help you sell Monarch Hydrated Lime. Write us that you want to be a "Monarch" man.
National Lime & Stone Co.
CAREY, OHIO

Seven Sizes
$950 to $4350

There is a KisselKar Truck to Exactly Suit Your Needs

The new line of KisselKar Trucks was designed to meet every haulage requirement.

There is one to fit **your** business—to exactly suit the peculiarities of your delivery problems.

No necessity to adjust your system to the truck—the truck will adjust itself to your system.

KISSELKAR TRUCKS

The new series is priced as follows:

1000-lb. delivery	$ 950
¾ to 1-ton truck	1500
1 to 1½-ton truck	1750
1½ to 2-ton truck	2100
2½ to 3-ton truck	2750
3½ to 4-ton truck	3350
6-ton truck	4350

Our new truck portfolio is ready with full specifications and details, besides hundreds of illustrations. It is sure to interest you—send for it today.

Kissel Motor Car Co., 548 Kissel Ave., Hartford, Wis.

New York, Boston, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Ia.; Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.

CHICAGO CITY HALL
Marquette Portland Cement Used

Building construction like the above requires the use of good cement.

The architects and contractors for the Chicago City Hall knew they must have a quality cement; they used Marquette Portland Cement, the cement of certified quality; they knew they could depend on it.

Marquette Cement Mfg. Co.

1335 Marquette Bldg. Chicago

It is a fact that the contractors who are using the most "CHICAGO AA" Portland Cement, are the ones who have been using "CHICAGO AA" longest.

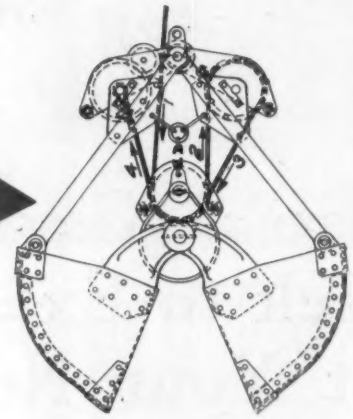
The permanent plaster for interior walls. May be retempered as often as necessary. Makes a perfect bond on concrete, brick, tile or lath.

Best Bros. Keene's Cement
The Plaster That Stands Hard Knocks

The Best Bros. Keene's Cement Co.
Established 1889
Dept. A, MEDICINE LODGE, KANSAS
New York—Chicago

Your Handling and Storage Costs?

Are you handling your materials as economically and efficiently as possible? Have you studied carefully the various types of buckets and compared them with the "Lakewood" Bucket?

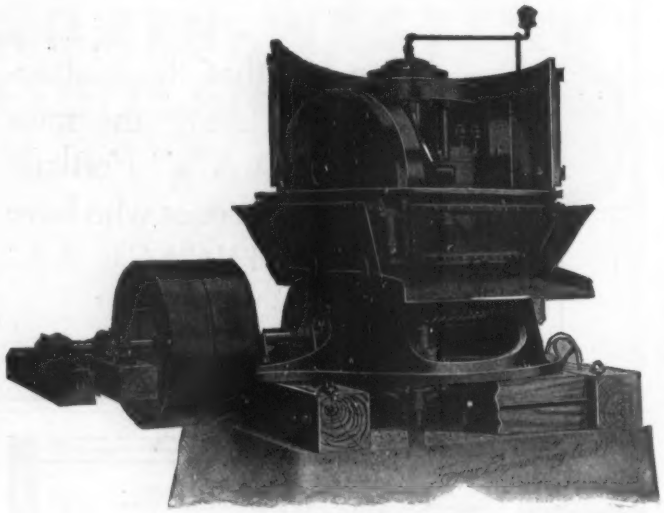


The "Lakewood" Clam Shell Bucket is the result of 18 years of manufacturing experience—**a powerful and efficient bucket, that will work well and pay well under all conditions of service.**

The value of an excavating bucket depends upon its ability to take a large load at each grab and to open and close quickly, thus giving great working capacity. It has been repeatedly proven that the "Lakewood" Bucket has far greater working capacity than any other bucket, regardless of type!

THE LAKEWOOD ENGINEERING CO.

CLEVELAND



6 FT. DIA. TRAYLOR WET MILL

TRAYLOR WET GRINDING PAN

or CHILIAN MILL

A strong, rugged grinding pan or mill with improved features insuring high capacity and low power cost. Has screen surface entire circumference allowing quick discharge.

ESPECIALLY DESIGNED FOR THE PREPARATION OF GLASS SAND

WE ALSO BUILD GYRATORY & JAW CRUSHERS, CRUSHING ROLLS, ELEVATORS, SCREENS, DRIERS, ETC.

Send for Catalog

Traylor Engineering & Manufacturing Co.

ALLENTOWN, PA.

N. Y. OFFICE:
24 Church Street

EUROPEAN REPRESENTATIVES:
WILFLEY CO., Ltd., London, Eng.

SALT LAKE OFFICE:
Newhouse Building
Salt Lake City, Utah

"BUILT FOR SERVICE"

The

C.R.S. Locomotive Crane

always dependable

Power *Speed* *Capacity*

and at the lowest operating and maintenance cost to you

LET US TELL YOU CONSERVATIVELY WHAT IT HAS COST OTHERS TO HANDLE THEIR MATERIAL

The Cleveland Railway Supply Co., Cleveland, O.

Record of 48 inch Crusher for a period of approximately 11 months—

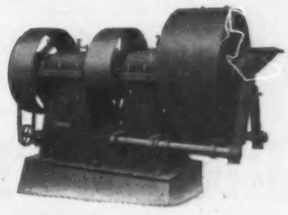
	Per Ton Crushed
Operating labor	$0.00214
Repair labor	.00205
Material for repairs	.00280
Power	.00899
Total	$0.01598
Less extraordinary items	.00228
Cost under normal conditions	$0.01370

No. 1 Crusher ran 4,392 hours and crushed 197,640 tons of ore. One pair of discs ran 3,453 hours, crushing 155,385 tons at cost of $0.0014 per ton for discs.

No. 3 Crusher ran 4,462.5 hours, and crushed 200,812.5 tons ore. One pair discs ran 4,462.5 hours, crushing 200,812.5 tons at cost of $0.00109 per ton for discs.

Crushers handled 45 tons per hour, crushing 3 in. to ¾ in. and requiring 85 horsepower each.

Eventually Symons Discs



MANUFACTURED AND SOLD ONLY BY

CHALMERS & WILLIAMS

New York Office, Equitable Building

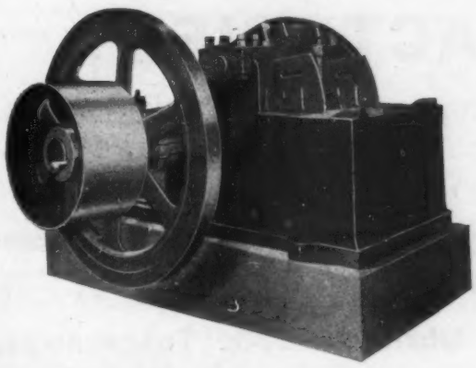
1450 Arnold Street, Chicago Heights, Illinois

One Advantage of the Blake Type Crusher

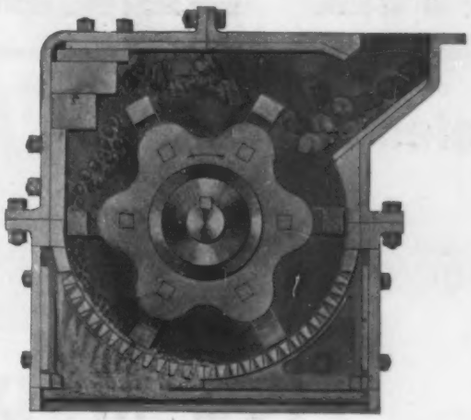
The bed, bumpers and all movable parts are cast with all holes cored, requiring no machine work whatever, which enables us to make the castings stronger to withstand the wear, and eliminates the possibility of mistakes in making repairs and lessens the cost of construction as well as the repairs to the consumer.

Write today for further information and one of our booklets.

Webb City and Carterville Foundry & Machine Works
Main Office, Webb City, Mo.



Economy in Pulverizing



The K-B Pulverizer

By the use of the best materials, upkeep cost in a K-B Pulverizer is reduced to a minimum; by correct design, capacity is increased to a maximum; thus making the K-B the most economical pulverizer ever built.

Why not request us to prove that we can save money for you?

The K-B Pulverizer Company, Inc.

86 Worth Street MANUFACTURERS **New York City**

"AMERICAN FIRST"

AMERICAN PLASTER BOARD—AMERICAN GYPSUM BLOCKS

"The Modern Lathing" *"The Ideal Partition Tile"*

GYPSUM WALL PLASTERS
MOLDING AND CASTING PLASTERS
PREPARED FINISHING PLASTERS

SANDED WALL PLASTERS WOOD FIBRE PLASTERS

WHITE FINISHING PLASTERS GYPSITE CEMENT PLASTERS

Ask for Illustrated Catalogue

AMERICAN CEMENT PLASTER COMPANY

General Offices
LAWRENCE KANSAS
Cable Address—AMPACO

Branch Offices
TOLEDO, OHIO FT. DODGE, IOWA CHICAGO KANSAS CITY, MO. MINNEAPOLIS, MINN.

THE BELDEN BRICK CO.

Incorporated 1893

Sales Offices: **CANTON, OHIO**

FIVE MODERN FACTORIES

producing practically every color and texture of Face Brick put us in position to take care of the dealer to the best possible advantage. It will pay you to have our samples and prices. Write now.

FACTORIES:

Canton, O. Somerset, O. Port Washington, O. Uhrichsville, O. Tuscarawas, O.

Haiss Wagon Loaders

(Patented)

dig and load trap rock, sand, gravel, coal, coke, etc., at a rate of 1 cu. yd. a minute, and at a cost of less than 1 cent a cu. yd. for electric or gasoline power.

Haiss Wagon Loaders save 10 cents a cu. yd. on all material handled with them.

Write for cost comparing data, and on how to get more trips per day with your present delivery equipment.

The Geo. Haiss Mfg. Co., Inc.
146th St. and Rider Ave., NEW YORK CITY

BRICK—The Old Way of Handling Them is a Nuisance

In tossing brick out of a car many are broken. A wheelbarrow doesn't carry enough bricks to warrant the time it takes to load, wheel it out and dump it.

Use a CLEVELAND BRICK CLAMP

It is the Newest and Quickest Way

Furthermore, in unloading brick it actually saves ONE-THIRD of the time over the old methods. This clamp is adjustable and will carry from FOUR to TWELVE bricks. There's no fuss or bother. Simply place the clamp down on the bricks and lift the handle.

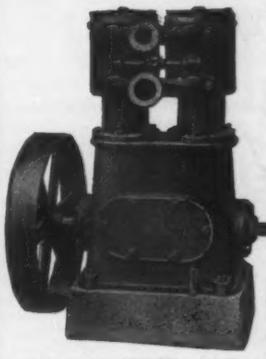
The price? It is so inexpensive ANYONE can afford it. Just send your name on a postal and we'll send a neat catalog and price list.

THE P. D. CRANE COMPANY, 10201 Harvard Avenue, Cleveland, Ohio

The first Portland cement manufactured in America

1866 PORTLAND SAYLOR'S CEMENT 1915

COPLAY CEMENT MANUFACTURING CO.
Mill, Coplay, Lehigh Valley, Penna.
PHILADELPHIA NEW YORK BOSTON JACKSONVILLE



THE CLAYTON

High Speed Self-Oiling

Air Compressors

Single, Duplex and Triplex

can be Coupled Direct or Belted to your Electric Motor or other source of power. Simple, Efficient, Convenient and Dependable. Best Machines for Small Pneumatic Tools, Riveters, Air Drills, Cleaning Machinery, Air Hoists, Moulding machine and small Foundry work, and other Machine Shop Service.

Send for Bulletin C-212-58.

International Steam Pump Co.
Clayton Air Compressor Plant
Works: East Cambridge, Mass.

NEW YORK OFFICE: 115 Broadway. Branch Offices in All Principal Cities
C165.1

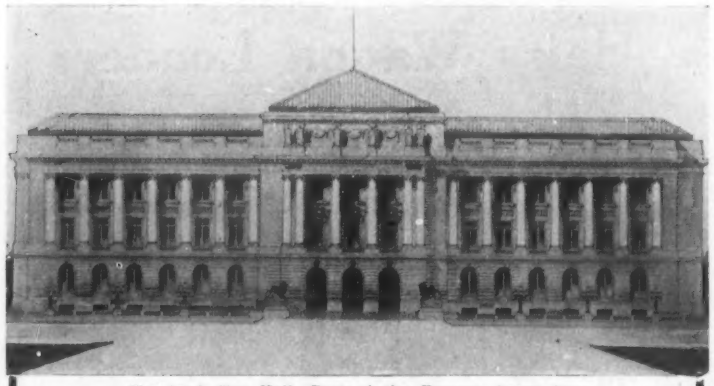
Robert W. Hunt Jno. J. Cone Jas. C. Hallsted D. W. McNaugher

Robert W. Hunt & Co., Engineers

Bureau Of
INSPECTION TESTS AND CONSULTATION
General Offices
TESTS OF PAVING BRICK 2200 Insurance Exchange, Chicago SEND FOR OUR BOOKLET "B"

THE METROPOLITAN PAVING BRICK COMPANY

Manufacturers of "BEST PAVING BLOCK MADE"
CANTON - - - - - OHIO



Cleveland City Hall, Part of the Famous Group Plan

How Would You Like to Sell This Order?

TIGER BRAND WHITE ROCK FINISH

Probably the largest single order for plastering materials ever let in the city of Cleveland was that for the New City Hall.

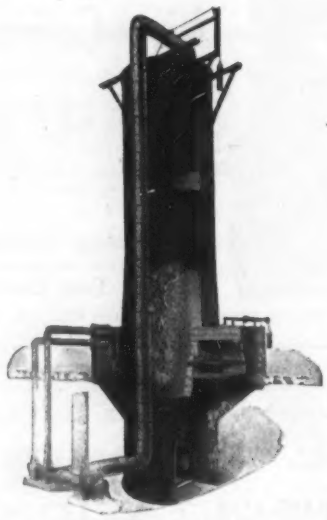
Over 5,000 Tons

Tiger Brand White Rock Finish and Tiger Brand Mixed Plaster

Architects are studying the plaster question and carefully specifying the materials. The big business goes to the dealer who handles Tiger Brand.

The Kelley Island Lime and Transport Co., Cleveland, O.

Doherty-Eldred Lime Kiln



The Improved Equipment Co.

COMBUSTION ENGINEERS

60 Wall St., New York City

Complete Coal Gas Plants
Complete Lime Burning Plants
Gas Producers
Lime Kilns
Special Industrial Furnaces
Refractory Materials

LEHIGH PORTLAND CEMENT CO.

LEHIGH

ALLENTOWN, PA. – CHICAGO, ILL.

What's In A Name?

Have you ever noticed that only the best looking homes, farms or estates are given names by their owners?

Modern business demands that all goods marketed have some name or mark by which blame for inferiority can be placed.

But only those businesses which have the certainty that their goods are unsurpassed throw the white light of advertising on their product's name.

In the cement industry, there is one name which carries the guarantee of twelve mills' production. Isn't it well to strengthen your own business with the reputation of such a product?

LEHIGH CEMENT

MILLS:
Ormrod, Pa.; West Coplay, Pa.; Foglesville, Pa.; New Castle, Pa.; Mitchell, Ind.; Mason City, Ia.; Metaline Falls, Wash.

OFFICES:
Allentown, Chicago, Spokane, New York City, Philadelphia, Boston, Minneapolis, Savannah, Des Moines, New Castle, Buffalo

12 Mills—Annual Capacity Over 12,000,000 Barrels

SEP 15 1915

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Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XVI. **CHICAGO, SEPTEMBER 7, 1915.** **Number 9.**

PUBLISHED SEMI-MONTHLY.
DEVOTED TO
Quarry Products, Cement, Lime, Plaster, Sand and Gravel, Clay Products and Building Specialties—Fireproof Building and Road Construction.

THE FRANCIS PUBLISHING COMPANY.
EDGAR H. DEFEBAUGH, Prest.

Seventh Floor, Ellsworth Bldg., 537 So. Dearborn St., Chicago, Ill., U. S. A.
Telephone: Harrison 8086, 8087 and 8088.

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GEORGE A. OLSEN, Editor Retailers' Section.
H. F. AKE, Secretary.
DRUSUS H. NICHOLS, Advertising Manager.

Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.
Every reader is invited to make the office of Rock Products and Building Materials his headquarters while in Chicago.
Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.
In the United States and Possessions.....$1.00
In all other Countries in the Postal Union.....$1.50
Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.
Advertising rates furnished on application.

Published on the 7th and 22nd of each month.
Entered as second-class matter July 2nd, 1907, at the Postoffice at Chicago, Illinois, under act of March 3rd, 1879.
Copyright, 1915, by E. H. Defebaugh.

Our reports indicate that during the past few weeks the demand for hydrated lime has been improving remarkably. Some of the mills that have been running half or three-quarters time are running full now and plenty of business in sight. The addition of hydrate in all concrete mixtures as broadly recommended by us for years is getting considerable recognition at last. And it is making good every time.

Steady cement quotations of one dollar at the mill in the Kansas district has come in the expected order of events. While probably too late to help much in the results of the present season, it will have the effect of getting the right kind of a start next spring. At such a figure everybody can live and prosper, just about the figure where the consumer can buy the maximum quantity, and at the same time give the mills a chance to do progressive promotion work in the development of a larger volume of permanent improvements.

Exceptional crops at big fat prices this year right on top of bumper size in 1914 sends more cash back into the country than has ever been known before. Last year every farmer with enough ambition to scratch purchased an auto, that is, all of them who had not previously so provided themselves. Now the sentiment is unanimously in favor of any and every possible road project that can be sprung. Your brand new auto driver is anxious to pay his part of road improvements. It's a pleasure to see the way a road petition acquires signatures these days. The very taxpayers who used to be most conservative in such matters are now the principal speakers at township meetings. Sure this is the golden opportunity to launch booster campaigns in practical road work. A little well directed promotion right now will help to bring out the biggest crop of road appropriations for next spring that was ever heard of. Let's go to it now, for the harvest is truly ripe for the reapers.

The cost of investment in special machines and equipment to turn out war supply orders takes most of the sweetness out of that game, as many have already learned. The scatteration of regular business caused thereby amounts to a net loss after the excitement blows over. It is now recognized as good business to look after the old regular lines of trade that is always with us, not subject to sudden countermand or a change of inspection as soon as the complexion of conditions warrants a curtailment of expenditures for fighting materials. It is now recognized by the wise ones that cream has been skimmed in the war stuff, and some of the tailers are bound to be stung in one way or another. The pronounced resumption of attention to standard and regular lines shows the good judgment of American manufacturers, and it is waking up activity in many lines in a notable degree.

The dealer in building materials is a factor in every community just as indispensable as the druggist or the grocer. He does not as a rule look upon himself in any such a light. In fact, about the hardest task we have found in all these fifteen years of labor amongst the dealers is to get them to realize that they are and do stand for something. In big cities it is different from the smaller towns, and there are some exceptions, of course. Perhaps a majority of the dealers do not take themselves or their business seriously. Their methods for the most part are disorganized, and they do not drive their business like they handle their teams. Once they are induced to come away from home to meet with other dealers and talk shop and discuss the possibilities that can be applied to their own operations there is a new man created who ever after knows what it is to be a dealer. We all learn from one another when we get together, and there is no comparable method of improving the dealer and his condition like getting him sufficiently interested to come out to a meeting of his fellows. It is the thing that teaches him where he is at, as they say it in Indiana. Let's have more and more of the good medicine.

The standing elevator tower with extension chutes for laying concrete in big masses has become very popular because it demonstrates economies in the handling of the considerable tonnage of materials involved in the operation. Such outfits are said to be making good, and inspection of a great deal of work put in by this method is altogether satisfactory. Yet there is the ever present tendency to undo again the work that the mixer has performed, by separating the aggregate according to size and weight as the mass goes rolling down the long chutes. This very thing was happening at a prominent building job in a western city recently that we happened to notice. The larger pebbles of gravel were rattling down the chute and filling up the bottom of the forms, preventing the finer materials and the all important paste from getting to the rods in anything like a compact mass. True, after the batch had run out and the tampers got in their work the wet stuff came through to the bottom boards of the beam forms, but it is doubtful if the same thing is true of the column filling. We don't want to get into the habit of making concrete barely good enough to get by, but we want to make it as good as it can possibly be made. Columns had better be filled with a bucket brigade or at least with a string of wheelbarrows while the foreman uses his rod to ram home the well graded stuff with the right kind of care in the first place. The patching up of columns with the trowel after the forms are removed is bad practice, and it is unnecessary. The standing tower doubtless has its virtues, but it needs watching.

WITH YOU and ME

E. M. Hagar is spending a few weeks with his family at his summer home at Camden, Me.

H. R. Blauvelt, a dealer in cement and other materials at Oklahoma City, was in San Francisco last week.

W. J. Pierce, president and manager of the Arden Plaster Co., of Los Angeles, Cal., has been in San Francisco visiting the Exposition.

"Bud" Rader, who was injured recently while playing polo, is walking with the aid of a cane and expects to be on the ponies again in a very short time.

P. H. Wilson, of Philadelphia, secretary of the Association of American Portland Cement Manufacturers, has been in San Francisco during the last few days.

The Pittsburgh Builders' Exchange is arranging to hold a corn roast on the farm of one of its members. The Exchange will resume its weekly luncheons about Sept. 15.

After 14 years of service with the Vulcanite Portland Cement Co., of New York City, A. E. Stranger has resigned his position. His plans for the future have not been made known.

Edward R. Bacon, of the Edward R. Bacon Co., of San Francisco, handlers of concrete mixers and other machinery, has been on a trip to Portland and other points in the Pacific Northwest.

Hamilton Stewart, financial secretary of the Harbison-Walker Refractories Co., was honored by having his photo printed lately in the Pittsburgh Dispatch in the section devoted to prominent business men.

Three hundred members of the New Orleans Contractors' and Dealers' Exchange and their friends, including a number of the city's prominent building material men, enjoyed the association's annual outing in the Crescent City Aug. 11. Despite a drivelling rain, spirits were not dampened on the trip over Lake Ponchartrain. The excursionists revelled on the three big barges provided by the Jahncke Navigation Co., and which were humorously labeled, "parlor," "dining room" and "kitchen." Many prominent people were aboard, including the mayor of New Orleans; the governor of the state being prevented from attending at the last moment. All together, it was a happy trip, and one long to be remembered.

The rock products industry is represented with a 100 per cent record among five men appointed by Congressman Madden as part of a recruiting detail for the business and professional men's military training camp which will be organized at Fort Sheridan, Ill., the latter part of this month. The five recruiting officers are: Wharton Clay, of the United States Gypsum Co.; Paul Henderson, president of the Western Stone Co.; Walter D. Willett, president of the A. T. Willet Teaming Co.; Andrew C. Laughlin, president of the A. C. Laughlin Crushed Stone Co.; Julian J. Pleas, vice president of the Union Lime Works. Morris Metcalf, who has allied himself with the Hagar Portland Cement Co., was one of the many business men who attended the training camp at Plattsburg, N. Y.

W. T. Whitledge has retired from the firm of Whitledge & Son, of Donora, Pa., engaged in the manufacture of cement block, and a partnership has been formed between Tom Whitledge and T. J. Donohoe, under the title of Whitledge & Donohoe. The new firm has a number of good contracts.

Fritz Jahncke, Inc., the Carolina Portland Cement Co., J. Watts Kearney & Sons and the Salmen Brick & Lumber Co. represented the building material interests in New Orleans from Aug. 23 to 28, during the Annual Fall Buyers' Convention. They entered heartily into the scheme which allowed every merchant his round trip railroad fare on purchases of $500 or more.

R. L. McChesney, secretary of the New Orleans Contractors' and Dealers' Exchange, was notified in August that he had been appointed State Commissioner of Louisiana by the board of control and jurisdiction of the National Association of Builders' Exchanges of the United States. Mr. McChesney is also secretary of the New Orleans building code board of appeals.

Mr. and Mrs. George W. Hotchkiss celebrated their fifty-ninth wedding anniversary on Aug. 14 at the Hotchkiss home in Evanston, Ill. Mr. Hotchkiss is secretary emeritus of the Illinois Lumber and Builders' Supply Dealers' Association and has possibly a longer continuous connection with the industries represented by this organization than any one man. Mrs. Hotchkiss recently celebrated her eighty-third birthday and Mr. Hotchkiss will complete 85 years on Oct. 16.

The Penn-Allen Co., of Allentown, Pa., has discontinued its policy of selling Penn-Allen Portland cement through the William G. Hartranft Cement Co., Inc., of Philadelphia, and has opened a general sales office in the Commonwealth building at Allentown for the sale of its product. A sales office has been established in the new Widener building, Philadelphia, for the Philadelphia district. This office is in charge of Edward E. Krauss, formerly secretary of the American Concrete Institute.

L. F. Cafferty, son of W. H. Cafferty, of the Kansas City Sand Co., and who formerly had charge of the retail sales of that concern, and Miss N. T. Vinick, who was also with the sand company in charge of country sales and credits, have organized the Kansas City Mixer and Material Co., which company has secured the agency for the Hains gravity mixer in Missouri and Kansas. According to Miss Vinick, a two-bag batch mixer was put to work on a 12-story building in the center of Kansas City and "it took like the mumps."

A few changes and additions have recently been made in the sales organization of the Lehigh Portland Cement Co., as follows: Norris Wilcox, formerly Chicago office manager, has been transferred to the Spokane office as assistant to C. B. Rogers, district manager. Mr. Wilcox's position in Chicago is now filled by Stuart Maginnis, formerly statistician in the Chicago office. F. T. Brown, formerly in charge of the traffic department at Spokane, Wash., has been added to the local Chicago sales force covering the city district. R. M. Walker, who has had quite an extensive experience in the building material business, having had charge of the Southern Wood Fiber Plaster Co., Jackson, Miss., for a number of years and later connected with the Carolina Portland Cement Co., at Birmingham, Ala., is now traveling Tennessee and Mississippi for the Lehigh company.

A very enthusiastic citizens' meeting was held at the Hotel Severin, Indianapolis, Aug. 30, for the purpose of arranging all details for the twelfth annual convention of the Indiana County Commissioners' Association to be held at the same hotel on Sept. 28, 29 and 30. The following chairmen were elected for the different committees: Finance, William F. Moore; reception, Richard Lieber; roads, Fred W. Connell; publicity, J. L. Kingsbury; automobile, Homer L. Cook; entertainment, Otto P. Deluse. This convention will be the largest gathering of public officials ever assembled in Indiana. Invitations have been extended to county auditors, county attorneys, county surveyors, highway superintendents, and one hundred mayors of Indiana's incorporated cities. The question of good roads will be given special attention and Mr. Fred W. Connell, chairman of the road committee, promises to have some speakers of national fame to discuss this very important question.

The river outing staged on Saturday, Aug. 28, by the Cincinnati Brick Club, with over 300 builders, contractors, architects and others who do business with the material concerns as guests, was as enjoyable an event as whole-souled and wholesale hospitality and sincere efforts toward that end could make it; which is going some. The Brick Club is small in numbers, including within its membership only the half-dozen or so of leading face-brick and building material concerns in the city; but it proved that it is mighty when it starts out to do something. The steamer "Majestic," chartered for the occasion, left the landing early in the afternoon with its hilarious cargo of brick men and their guests, and when it returned a few hours later everybody had had the time of his life. All of the members of the club assisted energetically in seeing to the pleasure and comfort of the visitors.

BUSINESS MEN SEE PROSPERITY AHEAD.

Business men of the country are looking forward to exceptional prosperity this fall, if a poll taken among 163 manufacturers by the Factory Magazine is a criterion. The poll was made among manufacturers of Chicago, Boston, Buffalo, Cincinnati, Cleveland, Detroit, New York, Philadelphia, Pittsburgh and Worcester. They were asked: "Will you state candidly your opinion of probable business conditions in your line this fall?"

The answers tabulated were as follows:

Exceptional	40
Fine or above normal	23
Good	60
Normal	7
Fair and fairly good	18
Nearly normal	3
Doubtful and watchfully waiting	4
Dull and poor	7
Much below normal and very poor	1

Del-Mar-Col's First Year Shows Progress

Annual Meeting at Atlantic City Also Shows Membership Greatly Pleased with the General Work of the Association Thus Far.

It was clearly indicated by the enthusiastic discussion by members of the various subjects presented at the fourth quarterly and first annual meeting of the Del-Mar-Col Builders' Supply Association at the Hotel Westmont, Atlantic City, N. J., Aug. 26 and 27, and from the beneficial results that have been accomplished so far, that the Del-Mar-Col association is now an established organization capable of producing many of the needed reforms in the trade for which it was formed. The meeting was attended by 13 active and 22 associate members.

President Grove, in his review of the association's work for the past three months thanked the members for their splendid coöperation in assisting him to bring to the attention of the building supply people the real nature and scope of the work of the association as a means through which its membership might be increased. Greatly improved conditions as to relationship between dealer and manufacturer have been the result of the first year's work of the association, and President Grove pleaded further for an earnest and extensive organization work in behalf of a larger membership in order that greater benefits might be derived in the coming year's work. Papers were read from officials of other Eastern associations on the work of their organizations.

A report from Secretary-Treasurer Steffey showed the association in good financial condition with a gradually increasing membership. General discussion on a number of important trade problems was indulged in, and it was readily shown, through this valuable interchange of ideas, the important place in the building supply business world the association holds, and the actual necessity for legitimate organization work for the more economical conduct of the average building material supply house.

The first day of the meeting was devoted entirely to committee sessions and executive conferences, the second day being given to the meeting of members which was called to order by President Grove at 9:00 a. m. A letter was read from Secretary J. Grason Steffey expressing his sincere regret that he would be unable to attend the meeting on account of illness in his family. President Grove appointed Henry W. Classen, of the Maryland Lime and Cement Co., Baltimore, as acting secretary, who went at the job in his usual active and thorough manner. After the reading of the minutes of the last quarterly meeting, held at Wilmington, Del., May 19, President Grove submitted the following report reviewing the work of the association for the past quarter:

President Grove's Report.

Submitting this my fourth quarterly report as president of the Del-Mar-Col Building Material Dealers Association, I wish to express hearty appreciation for the efforts of our active and associate members, who have assisted me so willingly in promoting the interest of our association, whereby we may stand prominent in the association world and give to our members, and all building material dealers, an opportunity for the betterment of their conditions.

The coöperation of the seven Eastern associations, I am happy to say, acting in perfect harmony, is working as a unit to make effective as near as possible the object points for which we were organized.

In this very short period of time we are being recognized throughout the manufacturing world far beyond our most sanguine hopes. This has been accomplished I can say, not in a spirit of antagonism or threat, but in a friendly and conciliatory spirit. We have received this recognition from the hands of the manufacturers because they have faith in us, believing it to be for the best interests of all, unity of purpose backed by confidence.

I wish to say here to our active membership, if we wish a continuance of the present conditions, we must do our part in an honest and fearless manner. Possibly it may be necessary to make some slight business sacrifice; we cannot expect the other fellow to give all and we reap the benefit without making any concessions. The dealer should play fair with the manufacturer if it is his desire to have the manufacturer play fair with him.

There is one other fault we dealers should try to remedy; that is, working for volume of business rather than profits.

One thing I wish to particularly call your attention to is the securing of new members. At our organization one year ago we started with a flattering membership, since then the growth is not what we had hoped. It is useless for me to dwell on the necessity of an increase in membership. You know well with an organization of this character its strength and powers lie largely in its membership. Your president has written to every member, active and associate, requesting them to make a special effort to secure members. We have also written a personal letter to each building material dealer covered by our territory urging him to join with us. I sincerely trust that

B. L. GROVE, PRESIDENT DEL-MAR-COL BUILDING MATERIAL DEALERS' ASSOCIATION.

at this meeting our united efforts will be productive of grand results.

It is my sad duty to announce to you at this time the passing away to the great beyond one of our organizers, and at the time of his death, an officer in our organization; one who will be missed by all, and within this organization more particularly by myself for oft times have I sought his advice and profited by his sound business judgment; a man of strong character, a deep friendship, and a most lovable companion, Harry P. Boyd, of Baltimore, Maryland.

Your president, since our last meeting, has had two complaints brought before him for investigation, where a manufacturer has quoted a contractor cement at the dealer's price. These complaints were taken up, and in each instance, the prices were withdrawn with a sufficient explanation, thereby a satisfactory conclusion to all parties concerned. We have in hand now, in the course of adjustment, a complaint of a similar nature which we trust will be brought to a satisfactory conclusion. We have found in each instance that all parties concerned show a disposition to play fair. We sincerely trust any known infraction of our arrangement be brought to our attention so they will be adjusted in a friendly and amicable manner, thereby preventing business feelings and possibly disrupting existing conditions.

We have with us a complete report of the proceedings of the directors meeting of the National Builders Supply Association, with which organization we are affiliated, held in Chicago, May 29. If you so desire, said minutes of this meeting will be read later during the course of our proceedings.

The seven Eastern associations have had quite a number of conferences in New York with the plaster manufacturers throughout the East. At these conferences, representatives of nearly all plaster manufacturers were present, its purposes being to have an arrangement similar and along the lines as those with the cement makers. At first it looked to be a forlorn hope, but with persistency on the part of your dealers' representatives, I am pleased to state at our conference the latter paart of July, an arrangement was concluded, whereby in the future, dealers will be recognized when making quotations, placing them in a position to compete successfully for all plaster business. Having now an understanding with the cement and plaster manufacturers, we feel we have made great progress in the right direction.

Since our last quarterly meeting, we have tried to get a perfect list of those we consider dealers doing business within our territory. To accomplish this, we took several mailing lists, furnished us by the cement companies, compiled them, sending a copy to each of our active members requesting correction and return. These corrected lists we have compiled and believe we have a near complete and up to date list of all dealers in building materials within our territory. We did this for a two-fold purpose; to secure membership, and to have a list of the dealers in every town, recognized as such by our membership.

In our association, we have a good thing, the several Eastern associations working as a unit togther with the harmonious feeling existing between the manufacturer of building materials and our organization. We are on the right track, pushing forward towards the goal for which the building material dealers have been striving for many years, "Prosperity."

Take a tight grip on your organization; the nearer you are to it the more closer you will be allied with your competitive dealer; the more friendly you are with him, the greater will be your success.

Papers were next read from prominent officials of Eastern builders' supply association on the need and exceptional commercial value of an organized effort on the part of all dealers and manufacturers in building materials for greater economic methods in doing business and for a more coöperative relationship between the producer and the seller of the product. The first of these papers by E. H. Palmer, vice-president for Connecticut of the New England Builders' Supply Association, follows:

Paper by E. H. Palmer.

As it has fallen my lot to represent C. M. Kelly, president of the New England Builders' Association, at the conferences lately held in New York City, where the various presidents of the Building Supply Associations have met the plaster manufacturers and perfected working arrangements, I take it upon myself to address a few words to you at your Atlantic City meeting.

The conferences just held as well as those previously held with the cement manufacturers prove beyond a doubt the need and the efficiency of our associations. No one association could meet all the manufacturers, neither can one dealer meet the wholesalers on anything like an equal basis. By meeting together, the manufacturers as well as the dealers get to know each other and have faith that various agreements will be carried out in a businesslike way, or without mincing words, business will show a legitimate profit when the annual accounting is made.

This, gentlemen, is our reason for being in business and if we do not operate in such a way as to make a better profit than the savings bank will pay us on our capital we might better retire, put our money in the bank, and leave the field unincumbered by our presence.

Naturally we cannot expect to start an organization with all the dealers of a section as members nor can we expect 100 per cent efficiency in the dealings between dealers and the various manufacturers, or between dealers of the same vicinity. It is true, however, that the manufacturers and dealers understand each other, and each recognizes the rights of the other, far better now than ever before.

We can improve this condition still farther by concerted action and uniformity of definitions of the seven Eastern associations. This might be accomplished by a conference committee, having occasional meetings or by each association, defining a dealer in the same way and then combining more closely the dealers that come under the definition.

It is said that "where there is a will, there is a way," and if we but look about us and see the way the labor organizations have their way it looks as if all we need is the will and the way will appear.

The work of our organization, aside from the annual meeting, is practically all carried on by the executive committee made up of a vice-president from each state acting with the president, secretary and treasurer. This committee meets as often as necessary to act on complaints, suggestions and association policy and always stands ready to assist the members. Our greatest single effort this year has been to back the enactment of a new lien law, in Massachusetts. We believe this new law to be worthy of study wherever the dealers need further protection.

Let us all be boosters. Boom our own business, boost our organization and do all possible for the common good of dealers and wholesalers.

A very helpful paper by C. M. Kelly, president of the New England association, pointing out the detrimental results of certain trade practices and presenting a forceful argument for the correction of these unfortunate conditions was read. Mr. Kelly's paper is given below:

Paper by C. M. Kelly.

For some years past the dealers who handle the heavy classes of masons' materials have realized that they were not making a reasonable profit upon the capital invested and, accordingly, several conferences have been held between committees representing the various dealers' associations and gentlemen connected with the sales department of the various cement manufacturing companies.

At one of the conferences held a short time ago, at which time this whole matter was discussed, seven building supply associations and seventeen cement manufacturing companies were represented.

At this conference the dealers gave the following as some of the reasons why they were not making a reasonable profit on the capital invested and why they

were entitled to a better discount than the consumer, who could at that time go into the market and purchase what he wanted direct from the manufacturer at the same price the dealer could purchase it, although he has no capital invested in the business:

First, because they had a large amount of capital invested in order to handle the heavy classes of masons' materials and supply the demands of the consumer; second, because they were obliged to purchase for cash from the manufacturer large quantities of materials in order to have a full stock and to supply the trade promptly, and, third, because during the time these materials were lying idle in the yard the manufacturer was receiving the use of and the dealer was losing the interest on the money invested. An investigation of the foregoing is sufficient to convince any fair minded person that the dealer practically finances the manufacturer.

Recognizing the force, logic and justice of this argument and that the dealer is not receiving a reasonable profit on the capital invested, and in order to make some allowance for the interest which the dealers lose by reason of their purchasing and carrying in stock large quantities of materials in order to supply the consumer at a moment's notice, the manufacturers stated it to be their intention to give the dealers the benefit of a reasonable discount and that they would quote dealers a rate of at least five cents per barrel less than named by them to any class of trade except the U. S. Government and steam railroads.

In this connection a dealer was defined to be a person or firm who carries as complete a stock of masons' materials as is needed for the requirements of the locality where he does business, and who also has the facilities for delivering large or small lots of same to the satisfaction of his customers.

Although the manufacturer will recognize as a dealer any person who is a member of any of the building supply associations and give him the benefit of the above discount, yet the fact that any person is not a member shall not bar him therefrom, if, after satisfactory inquiry, the manufacturer is of the opinion that he is a dealer within the meaning of the above definition.

In view of the above facts the gentlemen who have represented the dealers at all of these conferences are of the unanimous opinion that it is the duty of every dealer in masons' materials, when making quotations for cement in carload lots, not to name any lower prices than will be afforded him by taking the full discount which the manufacturer has seen fit to allow him as a differential. It is the duty of every dealer to strictly uphold the terms of sale and application of discount according to the terms as above outlined.

The dealer who takes it upon himself to split his commission, to allow unjust discounts or to lengthen the time of credit on sale, is working on lines which are entirely detrimental to the business and which have a tendency to cause the manufacturer to feel that he was right in the statement which he has previously made to the effect that the dealer was not competent to take for himself any margin of profit which had been made for him, however small it was. If every dealer will consider this matter carefully, he will be convinced that the above recommendations are for his best interests and it is the writer's opinion that if he will do this that the manufacturers will be satisfied that the margin of profit which has been afforded him by the above discount is so utterly inconsistent when applied to the return of the capital invested that it will be only a question of a very short time when greater discounts can be obtained for dealers.

Any reforms which we hope to get must of course be gotten by force of numbers and an association which has a membership of several hundred is much more able to convince the manufacturers of their right to a reasonable profit and to existing wrongs than a small number of dealers can, however powerful and influential they may be individually.

I trust that you will do all that you can to favor an increased membership for the association.

After all papers and routine business had been disposed of, President Grove called on George D. Elwell, general manager of the New York State Builders' Supply Association for a talk. In beginning his remarks, Mr. Elwell said that President Grove should be congratulated on having the goodly attendance that was present as it had been his experience that it was not as easy a matter as one would think to get the presence of a very large gathering in the middle of summer to talk business at a prominent seaside resort. Mr. Elwell's address had the usual punch to it, full of vim, enthusiasm and pleas for greater coöperation between dealer and manufacturer. He said that all the associations of builders' supplies should combine for the conduct of a great campaign of education which would result in pointing out the real service that could be rendered by proper organization; that it had been demonstrated that the builders' supply associations have done a good work so far and that the further coöperation of all associations will bring about a uniform policy which means success. Mr. Elwell said, in referring to the value obtained by the manufacturer in his association with the dealers:

The manufacturers want to know the market, and with a reliable knowledge of such they will better understand the dealer's situation and give the protection to the dealer that he must have. The meetings conducted by the different associations are of much value in that they bring together face to face the manufacturer with his dealer, his representative, in other words, affording an opportunity to clear up many of the misunderstandings that exist in the trade.

Mr. Elwell, in his usual enthusiastic spirit, aimed to send the one big point home—that the greater the development of sincere coöperation between dealer and producer, the bigger the success in many ways. No association is going to progress unless everybody means business, but if all get together, better conditions will follow.

President Grove, in thanking Mr. Elwell for his presence and assistance at the meeting, said:

Mr. Elwell's remarks have sounded the keynote for the creation of more confidence between dealer and manufacturer in an honorable way. Let us see that these doubts that so often prevail between dealer and manufacturer are done away with completely.

The president then referred to the sad death of Harry P. Boyd, one of the trustees of the association, and that it gave him much pleasure to appoint John J. Kelly of the National Building Supply Co., of Baltimore, to fill the vacancy on the board caused by the death of Mr. Boyd.

A matter which had been brought up at a previous meeting of the association was next presented to the meeting for the opinion of the membership, and its final decision as to whether or not it would be permissible under the by-laws of the association, to accept the application for membership of a dealer doing business outside the territory covered by the association. Reference to the association by-laws and deliberation over the subject resulted in a conclusion that dealers engaged in business in territory adjacent to the prescribed territory of an association, or in a border state for example, having no association, would be eligible for membership in their bordering state association. It was pointed out, in connection with this subject, that one of the best ways in which to develop the organization of new territory and to extend the work of the association was to take in dealers of states or territories having no association and interest them in forming an association in their respective territory. Mr. Kelly, of the National Building Supply Co., made the motion covering the admission of such dealers as heretofore outlined, which was passed unanimously.

President Grove next brought up what proved to be a very interesting subject before the debate on it had been concluded. The matter consisted of the diversity of opinion that existed as to what is the difference between a dealer and consumer in so far as the trade is concerned. The members went at this discussion from every angle and gave it a thorough analyzation in response to the wish of President Grove that he have the views of all members, dealers and manufacturers, so that such opinions might be presented at a meeting of Eastern association presidents along with the views of other associations, for the establishment of a general rule defining a dealer.

Bert L. Swett of the Lehigh Portland Cement Co. was called upon to give his opinion as to what constituted a dealer. Mr. Swett said that most manufacturers consider a dealer as one who has a yard, equipment for conducting his business in an active and efficient manner and duly recognized as a dealer in his community. In a town where a dealer is a combined contractor-dealer, he is, as a rule, recognized as a dealer. Mr. Swett further pointed out that in some cases, a contractor sells more material than a regular dealer, and it should be given consideration whether such contractor is entitled to the position of dealer.

Mr. Elwell said that in his judgment, a dealer is one who handles a full line of building material and is considered as a permanent dealer; who has invested a lot of money for a plant, warehouses and other equipment. Mr. Elwell did not consider the man who buys a car of cement now and then, and sells it from the track, a recognized dealer.

J. L. Durnell, of the Philadelphia Dealers' Association, having had considerable experience in dealers' association work, stated that deplorable conditions were all due to lack of coöperation or desire to get together for the improvement of conditions.

Mr. Classen thought the manufacturers should recognize the list of dealers to be compiled by the association in the matter of protection between dealer and consumer, before taking the word of any one who calls himself a dealer.

Mr. Swett, diverting somewhat from the subject of the determination of the status of a dealer, said that the more publicity the manufacturer gets from the dealers' meetings, the greater the improvement in general conditions in the trade. If dealers are so interested in having a better understanding with each other, why not get a strong membership and have all dealers present at these meetings where the numerous trade differences can be talked over.

Mr. Hollins told of the necessity of harmony between dealers of a local community, and how he had been able to accomplish harmonious conditions by pointing out to some local dealers the absurdity of the destructive practice of blind, ignorant and foolish cutting of prices, resulting in the sale of products at no profits. Mr. Hollins said the manufacturer should not be called on to rectify these unfortunate conditions but that the dealers should get together and work for their commercial improvement.

H. S. Rayner, representative of the Security Cement & Lime Co., at Baltimore, asked the meeting what their opinion was as to the trade status of a man conducting an office with a line of samples of building material. Is such a person to be recognized as a dealer? Mr. Rayner asked. There was a volume of "Nos" from the members. In the opinion of a number of members, such a man came under the head of jobber or broker.

In concluding the discussion of the dealer's status, President Grove stated that within a short time he would be able to finish the work of compiling the association's list of recognized dealers, which would be submitted to a conference of dealers and manufacturers with a view of a final adoption as to an official association list, subject to change, correction or addition thereto, as the meetings of the association might provide.

President Grove next referred to a communication that he had received, and which he felt in the course of his duty he must present to the association for its action. The communication consisted of a request from a cement manufacturing company asking the influence of the association in having cement quoted only by barrel. It was generally felt by the members that it was not the work or duty of a builders' supply association to attempt to influence dealers how they should quote and the matter was accordingly dropped.

E. R. Pusey, of E. R. Pusey Co., Wilmington, Del., here brought up the point of quoting on a contract, his understanding being that a cement company will not quote on a contract prior to the bids being announced. Mr. Elwell replied stating, that in his experience with such matters, he had observed that, as a rule, the manufacturer will protect the dealer obtaining knowledge of a proposed purchase of cement before the request for bids for such is made public. It was here stated that the cement companies are aiming to adopt a uniform method of quoting which will probably be in effect before the end of the year. This plan will tend to greatly simplify the misunderstandings that apparently now exist in many trade circles with reference to the practices of cement companies in making quotations.

The meeting here adjourned after which luncheon was served in the main dining room of the Westmont under the personal direction of Manager Kline, whose devotion to the comfort of the members had much to do in making the meeting a general success.

Active Members Present.

Henry W. Classen, Maryland Lime & Cement Co., Baltimore, Md.

Samuel A. Ver Valem, Hudson Cement & Supply Co., Baltimore, Md.

John J. Kelly, Jr., National Building Supply Co., Baltimore, Md.
Oscar L. Johnson, Oscar L. Johnson Co., Rockville, Md.
Edward R. Pusey, E. R. Pusey Co., Wilmington, Del.
J. L. Durnell, Charles Warner Co., Wilmington, Del.
Charles Warner, Charles Warner Co., Wilmington, Del.
Fred A. Daboll, Charles Warner Co., Wilmington, Del.
J. R. Baxter, Charles Warner Co., Wilmington, Del.
C. T. Kingsberry, Rosslyn Supply Co., Washington, D. C.
B. L. Grove, Grove Lime & Coal Co., Washington, D. C.
D. C. Chesterman, National Mortar Co., Washington, D. C.
Joseph W. Smith, Smith & Reefsurder, Westminster, Md.

Associate Members Present.

C. F. Cobb, Vulcanite Portland Cement Co., Philadelphia, Pa.
John A. Robb, Penn Allen P. Cement Co., Philadelphia, Pa.
John J. Peacock, Vulcanite Portland Cement Co., Philadelphia, Pa.
P. C. Somerville, Security Cement & Lime Co., Hagerstown, Md.
E. L. Becker, Tidewater Portland Cement Co., Baltimore, Md.
H. A. Manley, Cumberland Cement & Mfg. Co.
C. A. Leech, Saylors Portland Cement Co.
H. S. Rayner, Security Cement & Lime Co., Baltimore, Md.
F. H. Holland, Best Bros., Keene Cement Co., Medicine Lodge, Kans.
H. K. Hobart, Niagara Gypsum Co., Buffalo, N. Y.
W. R. Fox, Dexter Portland Cement Co., Philadelphia, Pa.
Jos. W. Campbell, Samuel H. French & Co., Philadelphia, Pa.
Henry Angel, Kelley Island Lime & Transport Co., Cleveland, Ohio.
H. A. Moore, Philadelphia Slag Co., Philadelphia, Pa.
Walter G. Dutton, Coplay Cement Mfg. Co., Philadelphia, Pa.
John H. Holmes, J. B. King & Co., Philadelphia, Pa.
C. L. Woolevn, Coplay Cement Mfg. Co., Philadelphia, Pa.
A. E. Daley, J. B. King & Co., Philadelphia, Pa.
G. A. Pierce, Dexter Portland Cement Co., Wilmington, Del.
C. B. Fry, Keystone Plaster Co., Philadelphia, Pa.
A. H. Lauman, National Mortar & Supply Co., Pittsburgh, Pa.
Bert Sweet, Lehigh Portland Cement Co., Allentown, Pa.
Henry M. Camp, Rock Products and Building Materials, Washington, D. C.

Visitors Present.

Charles A. Miller, Pennsylvania Builders' Supply Association, Reading, Pa.
Francis A. Hyde, Builders' Weekly Guide, Baltimore, Md.
George D. Elwell, Manager New York State Builders' Supply Association, Albany, N. Y.

New York's First Outing Complete Success

The first outing of the New York State Builders' Supply Association held at Manitou Beach, near Rochester, N. Y., on Saturday, Aug. 31, was voted a decided success by the more than 100 manufacturers' representatives and dealers present.

One of the first arrivals in Rochester was George D. Elwell, general manager of the association, who reached that city early on Friday morning in order to complete arrangements for the outing, collect prizes for the athletic events and work out the usual number of details required to make such an outing a success. In gathering the prizes, he had the valued assistance of J. Granger Ketchum, of the Keystone Fireproofing Co. and N. A. Kelly, of the Universal Portland Cement Co.

An informal gathering or meeting was held at the Hotel Rochester on Friday night, with 65 retailers and manufacturers' representatives, at which time Mr. Elwell reported generally on various matters of interest, both to manufacturers and dealers, and outlined a program for the following day.

At this meeting a resolution was passed commenting on the death of James J. Mandrey, of Rochester, N. Y., who was an old-timer in the business and a public spirited man, well liked by all who knew him and highly respected by the trade. For many years Mr. Mandrey's name was mentioned whenever leaders of the building material industry of the country were spoken of. A copy of the resolution, which was presented to ROCK PRODUCTS AND BUILDING MATERIALS, reads as follows:

Inasmuch as James J. Mandrey of Rochester, N. Y., who for many years was a representative dealer in builders' supplies and an active member in the National Builders' Supply Association, has been called by death, this organization desires to express its deep appreciation of his worth as a man and value as a friend.

Be it resolved that we hereby testify to our sense of loss in his demise and a copy of this testimony be presented to ROCK PRODUCTS AND BUILDING MATERIALS, our official publication.

Respectfully,
Horace Oliver,
John Davies,
L. G. Powell.

At the Beach.

On Saturday morning the assembled building material men left Rochester by trolley and automobile for the beach, 15 miles away, arriving there about 10:30 o'clock. In spite of the fact that a fierce rain raged until 11 a. m. and heavy clouds hovered overhead all day long, the attendance and enthusiasm was exceptional and equal to what might have been expected had the day been ideal for an outing of this nature.

One of the features of the outing and among the first events was a seven-inning baseball game between the manufacturers and the dealers. This game, which was won by the dealers, brought out some star players and some that were not stars. H. C. Whitmore, of Lockport, N. Y., was captain of the dealers' team and R. B. Holcomb, of the United States Gypsum Co., managed the manufacturers' squad.

After the ball game, about 110 delegates, including the wives and sweethearts of some of the men present, sat down to a shore dinner, during the course of which numerous popular and sentimental songs were sung by the crowd, which had been furnished with song sheets. At this time Mr. Elwell was prevailed upon to demonstrate his ability as a singer and furnished the crowd entertainment by favoring them with a solo. Athletic games, immediately after dinner, included everything from a standing broad jump to a three-legged and relay race. These were entered into very enthusiastically and uncovered many splendid athletes, besides numerous skinned shins and sore muscles.

GEORGE D. ELWELL, PRESIDENT, NEW YORK STATE BUILDERS' SUPPLY ASSOCIATION. ASSOCIATION.

An orchestra furnished music all day long and for dancing in the late afternoon and evening. After the distribution of prizes the attendants started for home "tired but happy," as more than one person expressed himself.

Honorable mention in connection with the ball game and athletic events should be given to the following:

John E. Maher, Rochester, N. Y.
Henry Angell, Kelly Island Lime & Transport Co., Cleveland, O.
S. F. Bartlett, United States Gypsum Co.
B. L. Swett, Lehigh Portland Cement Co.
Frank Douglas, Glens Falls Portland Cement Co.
W. S. Wing, Sales Manager, Universal Portland Cement Co.
L. G. Powell, Bostwick Steel Lath Co.
Emil Hansen, Farsgon Plaster Co., Syracuse.
H. C. Whitmore, Lockport, N. Y.
F. W. Ives, North Tonawanda, N. Y.
J. L. Hughes, Utica, N. Y.
S. B. VanDervoort, Jamestown, N. Y.

The attendance, which showed a good number of dealers and manufacturers' representatives present, was as follows:

Retailers Present.

John Davies, Empire Wall Plaster Co., Utica, N. Y.
B. J. Mitchell, Mitchell Builders' Supply Co., Niagara Falls, N. Y.
J. W. Bennett, The S. M. Hamilton Co., Dunkirk, N. Y.
J. M. Hamilton, Whitmore, Rauber & Vicinus, Rochester, N. Y.
Emil Hansen, The Paragon Plaster Co., Syracuse, N. Y.
H. C. Whitmore, C. B. Whitmore Co., Lockport, N. Y.
W. E. Gardiner, Buffalo Builders' Supply Co., Buffalo, N. Y.
Henry Schaefer, Jr., Globe Plaster Co., Buffalo, N. Y.
Alfred L. Lyth, A. Lyth & Sons Co., Buffalo, N. Y.
R. J. Randall, Buffalo Paragon Wall Plaster Co., Buffalo, N. Y.
H. T. Oliver, Estate of Thomas Oliver, Rochester, N. Y.
John C. Johnson, Syracuse Wall Plaster Co., Syracuse, N. Y.
George D. Elwell, Gen. Manager New York State Builders Supply Association, Albany, N. Y.
Charles H. Stegmeier, Tonawanda, N. Y.
R. C. Hager, Tonawanda, N. Y.
F. W. Ives, Ives Coal & Ice Co., North Tonawanda, N. Y.
J. L. Hughes, American Hard Wall Plaster Co., Utica, N. Y.
J. H. Ross, Buffalo, N. Y.
F. F. Dutton, Utica, N. Y.
M. S. Niland, Lockport, N. Y.
W. H. Stainthorpe, Lockport, N. Y.
Fred G. Sweet, New York State Sewer Pipe Co., Rochester, N. Y.
Edward G. Stattman, American Clay & Cement Corp., Rochester, N. Y.
Joe Harrington, McCarthy Bros., Auburn, N. Y.
R. J. Kyle, Cayuga Cement Corp., Ithaca, N. Y.
Charles Swanson, Jamestown, N. Y.
Melvin Swanson, Jamestown, N. Y.
Frank P. Farrell, J. B. Farwell & Co., Oswego, N. Y.
C. L. Hayes, Buffalo, N. Y.
F. E. Nugent, Utica, N. Y.
M. T. Bannigan, McQuade & Bannigan, Utica, N. Y.
R. D. Salisbury, Syracuse, N. Y.
George W. Lauer, Rochester Lime Co., Rochester, N. Y.
James C. Nellis, George W. Pack & Son, Syracuse, N. Y.
S. B. VanDervoort, VanDervoort Supply Co., Jamestown, N. Y.
F. A. Seiser, Rochester, N. Y.

Manufacturers' Representatives.

D. R. MacAllister, Trus-Con Laboratories, Detroit, Mich.
H. H. Frey, General Fireproofing Co., Utica, N. Y.
J. E. Maher, N. Y. State Sewer Pipe Co., Rochester, N. Y.
R. C. Williams, Thos. Millen Co., Jamesville, N. Y.
W. H. Wiltse, Thos. Millen Co., Jamesville, N. Y.
A. Wayne Robinson, Jr., Vulcanite Portland Cement Co., New York City.
W. W. Aube, Akron Gypsum Products Corporation, Buffalo, N. Y.
J. G. Ketchum, Keystone Fireproofing Co., New York City.
A. P. Lockwood, Kelley Island Lime & Trans. Co., Cleveland, Ohio.
F. Witt, Samson Plaster Board Co., Buffalo, N. Y.
E. B. Stanley, Clinton Mortar Color Co., Clinton, N. Y.
E. H. Curtis, Clinton Mortar Color Co., Syracuse, N. Y.
Henry Angel, Kelley Island Lime & Trans. Co., Cleveland, Ohio.
R. B. Holcomb, U. S. Gyp. Co., New York City.
S. F. Bartlett, U. S. Gyp. Co., New York City.
L. C. Letzkies, Universal Portland Cement Co., Pittsburgh, Pa.
J. H. French, Samuel H. French & Co., Philadelphia, Pa.
T. F. McBride, Samuel H. French & Co., Philadelphia, Pa.
W. S. Edgar, Atlas Portland Cement Co., Buffalo, N. Y.
Frank G. Conkling, Atlas Portland Cement Co., Boston, Mass.
F. B. McKenna, Atlas Portland Cement Co., New York City.
W. K. Souler, Paragon Plaster Co., Syracuse, N. Y.
R. M. Carsten, Universal Portland Cement Co., Pittsburgh, Pa.
M. A. Reeb, Buffalo, N. Y.
H. F. Wright, The Alpha Portland Cement Co., New York City.
Fred C. Lublow, The Alpha Portland Cement Co., Buffalo, N. Y.
Carl MacKain, The Alpha Portland Cement Co., Syracuse, N. Y.
R. J. Walsh, The Alpha Portland Cement Co., Geneva, N. Y.
R. L. Cope, Allentown Portland Cement Co., Bethlehem, Pa.
R. B. Bowkley, Allentown Portland Cement Co., Pittston, Pa.

(Continued on page 25.)

N. B. S. A.

Indiana Dealers Hold Interesting Meetings

Three exceptionally interesting and well attended meetings were held by retailers of the State of Indiana in their respective districts last week under the guidance and supervision of the National Builders' Supply Association, which has selected this state as the most fertile field for organizing district divisions in acordance with a plan designed by Secretary L. F. Desmond and approved by President J. H. Allen and the Board of Directors.

The plan, as adopted by the association, and published in the last issue of ROCK PRODUCTS AND BUILDING MATERIALS, is to divide the state into districts and bring together in each such district the retailers of that particular neighborhood who have practically the same problems to confront and the same conditions to meet. Eight such districts have been organized and the three mentioned above have just held their initial meetings. The other districts will each hold a meeting within the next few weeks.

Fort Wayne Meeting.

Twenty-seven men, representing district committee, No. two, which includes the counties of LaGrange, Steuben, Noble, DeKalb, Whitney, Allen, Huntington, Wells and Adams, met at the Hotel Anthony, Fort Wayne, Ind., on Thursday noon, Aug. 26. The early part of the meeting was given over to the usual task of making each man acquainted with the others and to the partaking of luncheon.

At the close of the meal Theodore C. Schwier, chairman of the committee, called the meeting to order and gave a brief history of the National Builders' Supply Association, his firm's connection with it and the possible benefits to a district organization which has its affiliation with the National body. He then called upon Secretary Desmond to outline the plan of organization and describe the possible benefits. Mr. Desmond spoke as follows:

The N. B. S. A. and Its Objects.

The National Builders' Supply Association has been in existence for 17 years and during that time it has had its ups and downs, which includes more downs than ups, but it has accomplished some good and it has benefited in many ways every handler of building material in the United States. It is true that most of the good accomplished up to the present time has resulted in indirect benefit, in other words, its work has been for the good of the cause.

Many, in fact practically all of the present members have supported this organization because it was and is a factor for the general good of the trade and not for any direct returns that might accrue to them through membership.

Its history shows that there have been many times in its career when adverse and unsatisfactory conditions have arisen in its administration, when many of the members could not see that any results were being accomplished, yet they all felt that the basic idea of coöperation in the trade was its only salvation and that the association must be kept alive for the future good that would inevitably come from such an organization, when it was finally organized along the right lines and made the agent through which the evils that beset this trade could be remedied.

During its years of existence this association has been seeking a plan of operation that would cause each individual member to take a vital interest in its welfare. A plan whereby all of the members could feel and see that real definite results were being secured and this plan under which we are now working will produce the required results and more—it carries the basis for the strongest trade organization in this country.

The plan of local district organization is being operated successfully along similar lines but for far more diversified purposes by the National Metal Trade Association, probably the largest and strongest trade association in the United States, which has most tremendous problems to cope with, and as you no doubt know by the American Federation of Labor, which you will concede is at least highly efficient. So in following this plan, we know what we are doing—we are not making an experiment.

The secret of the success of both of these great organizations is the activity of the individual members and their realization of the fact that they must coöperate and present a solid front on the fundamentals. Of course, they all have their internal troubles and so do we, but the greater good that comes through sticking to the organization overcomes any momentary discord brought about by the action of individuals.

Our membership must realize that an association only gives to those who give to it and that, in accordance with what you do for the association, the association will do for you. It is useless for dealers throughout the country to complain of existing conditions and say that they would like a remedy, and then, when asked to work for and sacrifice a little so as to secure the remedy, to peevishly murmur, "It can't be done. What's the use?"

The dealers have got to be animated by what might be called the spirit of enlightened selfishness—a selfishness that has breadth and farness of vision to understand that no one can live to himself alone; that no man can hog the market and that what he does to better the other fellow's conditions automatically benefits himself; and that this applies not only to his neighborhood competitors, but applies with equal force to his colleagues in other cities. You cannot improve conditions in Fort Wayne and have them bad in Kokomo—what affects one affects all—and you must all stand or fall together. And just as they pay insurance for the purpose of protection, so must they contribute to and loyally support an association such as this, as a matter of personal protection.

When you have sat, month after month, beside your competitors, with your knees under the same mahogany, those competitors are simply bound to feel differently toward you when you are in trouble—and to act differently, too—than as if they were comparative strangers to you. This is really the big element at the bottom of association work; and when you overlook this element you overlook the main reason why the legitimate voluntary business association helps to keep competition alive and helps to keep the smaller competitors going and in the game.

In conclusion, permit me to say that I do not believe that at any time in the history of this association was the time so favorable as it is at present for us to get down to a sound, practical business basis. Those whom we cannot get along without, and whom we think cannot get along without us, are ready to assist in the work, and in the broad-minded spirit of equal rights to all and special privileges for none, are ready to help make the National Builders' Supply Association one of the foremost trade associations in the United States—an association membership in which will fix a man's standing in the industry and which will be eagerly sought for and valued and prized as indicating the hall-mark of a modern, progressive merchant, one who has a pride in his business and the service he renders to the community by the manner in which he conducts it. Opportunity is knocking at our door. Will you let her in?

At the conclusion of Mr. Desmond's remarks, B. F. Affleck, president of the Universal Portland Cement Co., who had accepted an invitation to be present, was called upon and stated that he was glad to see so many dealers present and interested in each others' business as well as their own. He said that quite frequently one or two obstreperous dealers are sufficient to disturb the business of every dealer in the state and urged them to try persuasion in getting their fellow dealers into the organization. The usual course in business is to yield to the temptation to seek revenge when unbusinesslike and ruinous competition is indulged in. Instead of allowing one faction to demoralize business, dealers were advised to endure the friction for a while and try to prevent a reoccurrence in the future.

He referred to the attitude of the government in regard to the recent so-called "trust" decisions and said that the government is showing leniency in favor of business men.

Reduction of Price Never Increases Use.

Referring to the sale of building materials and the prices received therefor, with particular reference to the commodity in which he is interested, Mr. Affleck said: "The reduction of price never increases materially the use of cement." He dwelt to some extent on competitive conditions and suggested operation as the best remedy.

C. E. Ellenwood, of the Fishack-Ellenwood Co., next addressed the assembled dealers on "Getting Together." He pleaded for an increased membership in the National Builders' Supply Association and consequently a strengthening of the local district committee.

W. D. Riddell, of the Central Manufacturers' Insurance Co., spoke on the new compensation act which was scheduled to go into effect on Sept. 1. He stated that the measure was of vital importance to every employer and employe of the state and advised the dealers to study it carefully.

Before adjournment it was decided to hold regularly meetings on the fourth Thursday of each month.

The Fort Wayne Attendance.

The following named men were present at the meeting:

Crist Shank, Grabill Lbr. Co., Grabill, Ind.
William H. Schnelker, Elastic Plaster & Coal Co., New Haven, Ind.
George A. Olsen, ROCK PRODUCTS AND BUILDING MATERIALS, Chicago, Ill.
E. M. Baltes, E. M. Baltes & Co., Ft. Wayne, Ind.
H. J. Rowell, Wm. Moellering's Sons, Ft. Wayne, Ind.
J. O. Sellemeyer, Kirsch Sellemeyer & Son, Decatur, Ind.
F. M. Whetstone, American Luxfer Prism Co., Chicago, Ill.
C. H. Schultz, Jocquet-Schultz Co., Ft. Wayne, Ind.
D. F. Wibble, Kendallville, Ind.
W. O. Bassett, Hansell Coal Co., Kokomo, Ind.
B. F. Affleck, Universal Portland Cement Co., Chicago, Ill.
Theodore C. Schweir, E. M. Baltes & Co., Ft. Wayne, Ind.
L. F. Desmond, National Builders' Supply Ass'n., Chicago, Ill.
C. E. Ellenwood, Fishback-Ellenwood Co., Ft. Wayne, Ind.
W. E. Hibbard, Central Manufacturers' Insurance Co., Chicago, Ill.
W. D. Riddell, Central Manufacturers' Insurance Co., Chicago, Ill.
E. H. Moellering, William Moellering's Sons, Ft. Wayne, Ind.
J. Edwin Ellis, Ellis Brothers, Kokomo, Ind.
John Sulzer, Jr., Ft. Wayne Builders' Supply Co., Ft. Wayne, Ind.
Fred Wehrenberg, New Haven Lumber and Supply Co., New Haven, Ind.
C. W. Addington, Hixon Lbr. Co., Garrett, Ind.
W. F. Spangler, Spangler & Crulieff Lbr. Co., Churubusco, Ind.
W. B. Fisher, W. B. Fisher & Co., Avilla, Ind.
George L. Arnold, H. C. Arnold & Son, Bluffton, Ind.
H. H. Dean, Studebaker Grain & Seed Co., Bluffton, Ind.
O. H. D. Rohwer, Lehigh Portland Cement Co., Chicago, Ill.

The Meeting at Kokomo.

A meeting of the dealers of district committee, No. six, which includes the territory within a radius of about 15 miles of Kokomo, was held in that city on Thursday night. Due to the fact that W. O. Bassett and J. Edwin Ellis were forced to wait until the close of the Fort Wayne meeting before they were able to motor with the visiting speakers to Kokomo, and the consequent time consumed in covering the 97 miles, the meeting was rather late in starting.

A splendid supper was enjoyed at the Hotel Courtland, after which J. H. Panabaker, chairman of the local committee, rapped on the table for attention. After stating the objects of the National association and his belief in the movement, he called upon Secretary Desmond to explain the details co-incident with the organizing of a local district committee.

After reciting the experience of the dealers at Fort Wayne a few hours previous, Mr. Desmond gave practically the same address as the one delivered at the noonday meeting.

He was followed by Mr. Affleck, who referred in an interesting manner to the pleasant automobile trip and his first impression of the city as the machine entered its suburbs. He then stated that it was his personal belief, and he was positive that other manufacturers felt the same way,

that the N. B. S. A. was on the right track and doing the most possible good for its members and the industry in general by the organization of local district associations. Mr. Affleck, who has a keen sense of humor illustrated his points with a number of spicy anecdotes.

The next speaker called upon was G. A. Olsen, who was present to assure the dealers of the approval of ROCK PRODUCTS AND BUILDING MATERIALS to the new plan and recited the experiences of associations in all parts of the country where building material dealers have succeeded in accomplishing desired results by thorough and permanent organizations.

Before adjourning the meeting, Chairman Panabaker urged the dealers to give the association their heartiest coöperation and to urge their fellow dealers to become affiliated. He characteristically told the dealers that his belief in the association was so strong that he would personally guarantee satisfaction to every member. To substantiate his claims, he offered to refund at the end of three months' time the dues of any dissatisfied member.

The next meeting of the district committee will be held on Sept. 24.

Attendance at Kokomo Gathering.

The attendance was as follows:

Ernest Ellis, Ellis Brothers, Kokomo, Ind.
C. E. Hamer, Hamer Lumber Co., Greentown, Ind.
C. F. Mast, Hamer Lumber Co., Greentown, Ind.
C. W. Hamer, Hamer Lumber Co., Greentown, Ind.
Raymond Mehlig, South Side Lbr. & Coal Co., Kokomo, Ind.
Leo Hoffman, M. Hoffman & Son, Sharpsville, Ind.
L. L. McDonald, Galveston Lbr. Co., Galveston, Ind.
O. E. Shroyer, Bunker Hill Lbr. Co., Bunker Hill, Ind.
J. Edwin Ellis, Ellis Bros., Kokomo, Ind.
W. O. Bassett, Hansell Coal Co., Kokomo, Ind.
Clint Hunsinger, Hunsinger Bros., Greentown, Ind.
George Hansell, Hansell Coal Co., Kokomo, Ind.
B. F. Affleck, Universal Portland Cement Co., Chicago, Ill.
J. H. Panabaker, Sam Panabaker & Son, Kokomo, Ind.
L. F. Desmond, National Builders' Supply Association, Chicago, Ill.
George A. Olsen, ROCK PRODUCTS AND BUILDING MATERIALS, Chicago, Ill.

On Friday, Aug. 27, 22 men sat down to lunch at the Oliver Hotel, South Bend, during which time each one present became acquainted with his neighbors and at the close of which Chairman Walter M. Hildebrand caused each man to arise, give his own name, the name of his firm and the place of his business.

Mr. Hildebrand described for the benefit of the assembled dealers the objects of the National Builders' Supply Association, with particular reference to the organization of local districts and the credit plan of the national association, which is placed at the disposal of each district committee as soon as its organization is completed.

Secretary Desmond outlined the plan in the same manner as he presented it to the Fort Wayne and Kokomo dealers on the previous day.

O. H. D. Rohwer, representing the Lehigh Portland Cement Co., complimented the dealers on their large assembly and the purpose of the meeting. He assured them that the manufacturers were pleased to see dealers getting together in national, state and local conventions for the purpose of bettering their own conditions as well as the general conditions of the industry. He recited instances where benefits had accrued as a result of trade organizations and emphasized the fact that retail dealers are a necessity and entitled to a just recompense for their labors, capital investments and local prestige.

He was followed by G. A. Olsen, who described the relation between the dealer and the manufacturer and stated that any endeavor which had for its ultimate purpose the elevation of the building material industry, with particular reference to the profit making ability of the retailer, would meet with the approval of, not only cement manufacturers, but makers of all fireproof material. It is a well-known fact that when the dealers prosper the welfare of manufacturers is naturally enhanced.

Chairman Hildebrand gave every man present an opportunity to state his opinion as to the needs of a local association and the benefits possible from such an organization. Among the speakers who were called on were Messrs. Munger, Kauffman, Godfrey, Holdeman, Hess, Smogor, Jackson, Ferrier, Murray, Anderson, Newland, DeFrees, and Olinger.

The united opinion was to the effect that as long as ruinous competition exists there will be no profit for the building material dealer. One of the speakers stated that he has been in the lumber business for 25 years and for 12 years of that time, when proper coöperation existed, he made money. His firm at the present time records a loss at the end of the year's business. He stated that the builders' supply business is no better than the lumber interest in this respect.

The plan of the Naional association, acting as a parent body, and thereby working a greater influence upon the dealers in any given community, was brought out by Mr. Murray and met with the approval of the assembled dealers.

Mr. Holdeman expressed the belief that the dealers in a single city cannot have the weight with wholesalers and manufacturers that an interurban association will develop. He favored the idea of district associations and said they should be a stimulus for bringing dealers together on a firmer basis.

Mr. Ferrier stated that a quotation from the Good Book says: "Earn your bread with the sweat of your brow," and remarked that a great many dealers are not earning bread but whose brows are constantly sweating.

Discussion developed the fact that dealers would rather get together at a dinner in the evening than at the noon hour and accordingly a motion to have the regular meeting of the district committee in conjunction with a six-o'clock dinner on the fourth Wednesday of each month was unanimously carried. The next meeting will be at Elkhart on Wednesday, Sept. 22.

The attendance of this meeting was as follows:

Attendance at South Bend Meeting.

T. Anderson, Herzog & Anderson, Mishawaka, Ind.
G. A. Olsen, ROCK PRODUCTS AND BUILDING MATERIALS, Chicago, Ill.
Phillip D. Murray, Burr Oak, Ind.
Guy D. Staples, Staples-Hildebrand Co., South Bend, Ind.
E. R. Newland, Builders' Supply & Specialty Co., South Bend, Ind.
C. S. Smogor, A. Smogor & Sons, South Bend, Ind.
O. H. D. Rohwer, Lehigh Portland Cement Co., Chicago, Ill.
L. F. Desmond, National Builders' Supply Association, Chicago, Ill.
W. M. Hildebrand, Staples-Hildebrand Co., South Bend, Ind.
A. H. Herzog, Herzog & Anderson, Mishawaka, Ind.
O. W. Voorhees, Lowe Bros. Lbr. Co., Mishawaka, Ind.
C. I. Ferrier, J. O. Ferrier, Culver, Ind.
W. M. Hass, No. Liberty Lbr. & Coal Co., North Liberty, Ind.
Walter G. Eckler, Henry Eckler Mfg. Co., South Bend, Ind.
T. H. Holdeman, Brusman & Holdeman, Elkhart, Ind.
B. C. Godfrey, B. C. Godfrey & Son, Elkhart, Ind.
C. H. Defrees, South Bend, Ind.
I. W. Jackson, Builders' Supply & Specialty Co., South Bend, Ind.
H. C. Lontz, Samuel C. Lontz & Son, South Bend, Ind.
Ira Kauffman, Consumers' Coal & Supply Co., Elkhart, Ind.
R. W. Monger, Monger Lbr. & Coal Co., Elkhart, Ind.
J. C. Olinger, Lakeville Lbr. Co., Lakeville, Ind.

PREPARING FOR FUTURE MEETINGS.

As a result of the enthusiastic meetings held at Fort Wayne, Kokomo and South Bend, last week, retailers in those sections of Indiana where district associations have recently been organized are looking forward with much anticipation to the meetings which will be held next week. During a period of three days, four meetings will be held in as many different centers. The first of these is staged for Lafayette on Wednesday noon, Sept. 15. The next day at noon a gathering of the dealers in Anderson, Elwood, Summitville, Alexandria, Frankton, Lapee, Noblesville, Pendelton, Fortville, Middletown, Daleville and the surrounding towns will be held at Anderson. That night retailers of Randolph, Delaware, Blackford and Jay counties will assemble at Muncie. Friday, at noon, retailers of Logansport, Clymers, Idaville, Barnettsville, Burrows, New Waverly, Walton, Lucerne, Royal Center, Twelve Mile, Camden and Flora will assemble at the Barnett house, Logansport.

The week following, regular monthly meetings and the second meeting in the history of their organizations will be held by district committees No. two, three and six. No. two will hold its meeting at Fort Wayne on Thursday, Sept. 23, No. three at Elkhart, on Wednesday, Sept. 22, and No. six at Kokomo on Friday, Sept. 24.

New England Market Strong.

Boston, Mass., Sept. 4.—Building permits in Boston the last two weeks amount to $2,775,000 on 243 projects, according to the F. W. Dodge Co. statistical bureau. Building keeps up a strong stride, especially in the industrial sections. Material men think the fall trade, naturally expected to take a rise, is slow in showing the development. Some good city contracts have been let for pipe within the last two weeks, otherwise the trade has no special features.

The federal reserve digest of business conditions says: "Building operations in New England show contracts for the year up to Aug. 4 of $188,767,000, the largest amount shown at any time during the past 15 years, with the exception of the year 1912."

Fall fairs in the Cape Cod section are being hunted somewhat for cranberry farmers who are now in the market for drain pipe. The cranberry association at its recent annual meeting decided it would be a good plan to flood the bogs entirely for a season in order to rid the areas of gypsy moth and insure a full crop, which has not been had for several seasons. A good bit of extra tilling would be laid this fall if the plan is carried to the extent intended.

PITTSBURGH SHOWS SLIGHT IMPROVEMENT.

Pittsburgh, Pa., Sept. 4.—Gradually the retail business here is showing a better foundation. There is not going to be a large amount of business done the remainder of the season, but projects are looming up which make it appear that big contracts and sales will be forthcoming later on. Just now the raising of the streets below Liberty avenue above flood level is calling for a large amount of material. Also, the big building projects going on down town are producing quite a market for cement and will take more of this material and others later on. The worst complaint from the retailers is that house building is not on as large a scale as it should be. Architects believe that more projects in all lines of building will be coming onto the boards this fall; this looks hopeful for retailers. As a general rule dealers here say they have done 75 per cent as much business as last year, but they hope that the next four months will help them to pull up and overcome this loss.

BUILDING ACTIVE IN MILWAUKEE.

Milwaukee, Wis., Sept. 4.—The building investment in Milwaukee during the month of August showed a gain of nearly $400,000 and the indications are that there will be plenty of activity from now on. Building Inspector W. D. Harper issued 327 permits for structures to cost $1,073,079, as compared with 304 permits and an investment of $673,729 during the corresponding period a year ago. The building inspector is confident that the building record for the year will exceed that of 1914 by at least $1,500,000, basing his predictions on the amount of big building which has been planned and which will be carried out before the close of the present year.

The Neuman Sand & Supply Co.; York, Pa.; capital, $5,000; to deal in sand, stone and cement.

NEWS of the TRADE

1914 Building Statistics Interesting.

The figures of building operations for 1914 just made public by the United States Geological Survey show that, although there was an apparent general decrease in building operations throughout the country, ten cities which during the year 1913 showed decreases rallied in 1914 and showed increases. The most noteworthy feature in the building industry in 1914 was the large decrease in New York City, by which it lost its rank as the leading city in cost of building operations, being passed by Chicago. The cost of building operations in Chicago was $83,261,710, against $74,030,241 in New York. New York's decrease, compared with 1913, amounted to $33,074,466. The greatest increase shown in any city was in San Francisco—$7,140,299—the second largest increase being in Brooklyn—$7,109,801.

In 48 selected cities the total cost of building operations in 1914 was $619,752,354, compared with $673,220,625 in 1913.

Efforts were made by the Geological Survey to obtain detailed information from the leading 157 cities in population. Replies were received from 147 of these, 113 of them furnishing sufficient details to permit the publication of figures by classes of buildings. Building operations in the 147 cities cost $785,525,746 in 1914. In 113 of these cities the new buildings of all kinds cost $461,681,108; new wooden buildings, $165,226,250; new fire-resisting buildings $296,454,858, and new brick buildings cost $181,957,682. All other new fire-resisting buildings cost $114,497,176. The cost of all additions, alterations, and repairs in these 113 cities was $67,230,432, $24,453,877 of which was for wooden buildings and $42,776,555 for fire-resisting buildings.

Chicago Dealers Remain Busy.

The building boom goes on apace, a number of important projects having been announced since the last report in ROCK PRODUCTS AKD BUILDING MATERIALS, while in addition permits were taken out for a number of buildings in which the consideration ran from $325,000 to $100,000. Conspicuous among these was a reinforced concrete building which Armour & Co. are to erect at the stockyards, the cost of which is placed at $325,000; a roundhouse for the B. & O. C. T. R. R. on West Fourteenth street, to cost $245,000; a warehouse at 200-208 Illinois street, to cost $107,000; a theater on West Twelfth street, to cost $100,000, and a church on Douglas boulevard, to cost $100,000, and a $200,000 plant which the Wheeling Corrugating Co., of Wheeling, W. Va., one of the largest sheet metal and sheet metal products manufacturers in the country, is to construct.

Among the permits worthy of exceptional mention is the one granted the Edgewater Beach Hotel Co., for a 10-story fireproof hotel to be constructed of concrete and tile at a cost of approximately $600,000. Another is the one granted the much talked of Y. M. C. A. hotel at 618-26 South Wabash avenue, the cost of which is placed at $750,000.

During the two weeks ending Sept. 4, there was a total of 372 permits issued in the city at an estimated valuation of $5,149,900. This is 117 permits more and $3,426,500 greater than the corresponding period of 1914. During the two weeks of last year there was a total of 155 permits issued at an estimated valuation of $1,743,400.

Retailers of building materials in various parts of the city report increases in business when compared with last year and state that conditions are still improving.

While the Consumers Co., in common with other ice manufacturers and ice dealers all over the country, has suffered a material slump in that branch of its business, conditions in the other fields of activity have improved and are generally ahead of last year.

The building material trade enjoyed by the Consumers Co. felt the building strike, according to an official of the concern, but has rallied sufficiently since the labor difficulties were adjusted to show an increase over last year.

"The ice business has suffered a shrinkage in demand this season, due to the weather conditions, and is off about 35 per cent," said this official. "The building material end of the business shows an increase over last year and is improving. The coal trade also will show an increase."

New York Conditions Improved.

New York, Sept. 3.—Sharp improvement in building material conditions in the Eastern market followed the slump in rates of exchange on the English pound sterling. Structural steel quotations advanced, common brick which was far down the list and was being sold in some instances actually below cost of delivery in New York's wholesale market, all grades of black slate, inch and a half gravel, lime, Portland cement, fire proofing material and even gypsum either actually advanced or stiffened perceptibly on their respective lists.

Whether there was any concrete connection between the drop in exchange rates and the inquiry for building materials is a matter of considerable difference of opinion among building material interests here, but the fact remained that one important operator who has been holding off for several months with a $300,000 project rather than pay what he considered exhorbitive premiums and high interest rates, got his money and proceeded to close contracts for material.

The controller of a financial institution which is the heaviest lender on Manhattan building projects told the correspondent of ROCK PRODUCTS AND BUILDING MATERIALS today that any slump in exchange rates will naturally divert a great deal of money to other channels. He feared that consequences rather serious to the real estate interests of New York and vicinity would accrue from the drop because this borough, he said, was already seriously over-constructed and that if there should be a general letting down of the bars on new construction work in the proportion that they are now being projected, a still further slump in realty values would follow, which would only serve to prolong the real building boom that is expected when the subways are completed and the manufacturing and residential shifting of population occurs.

WESTERN DEALERS FORM CREDIT ASSOCIATIONS.

The Building Material Dealers' Credit Association has been incorporated at Portland, Ore., by A. H. Allen, H. W. Hall and G. W. Herron. A. H. Allen is president of the association.

Fresno, Cal., building material men have organized a credit club under the leadership of E. M. Prescott and A. W. Bernhauer.

Frisco Builders to Entertain Industry.

San Francisco, Cal., Sept. 4.—In order that the men who are responsible for the building industry of the United States may have an opportunity for viewing the Exposition under the most favorable circumstances, the San Francisco builders have appointed a large general committee to work out the details of the proposed American Builders' Week at the Exposition. The week of Oct. 18 to 23 has been set aside as one especially devoted to the interests of builders; it is expected that fully 10,000 men in various lines of the building trade will avail themselves of the opportunity to gather in San Francisco during that week.

Special demonstrations of materials and methods will be arranged for the instruction of the craftsmen by exhibitors at the Exposition; and an elaborate program of entertainment will be provided by local builders. The gathering will be in the nature of an informal conference rather than a convention. A big parade in which the progress of the building industry will be featured is one of the plans now under consideration.

John D. McGilvray, Sr., is chairman of the general committee in charge of the American Builders' Week; Supervisor Ralph McLaren is vice-chairman and E. T. Thurston, secretary. A representative of the local builders will be sent East to stir up interest in the plan.

Eastern Canada Slowly Recuperating.

Toronto, Sept. 4.—A canvass of the dealers in builders' supplies shows that there are a great number of small jobs under way, and that while there are many orders, individually they are very small. Statistics reveal the effect of war conditions on the building programs of Toronto and Montreal as well as the smaller centers.

In seven months of 1914, previous to the declaration of war, the permits of Montreal totaled over $11,000,000, while for the corresponding period this year the total permits were less than $4,000,000. This shows a falling off of about 65 per cent. For July the reduction of permits for Montreal was nearly 83 per cent. In Toronto the permits were slightly less than $4,000,000 for the first seven months of 1915. For the same seven months last year the permits were nearly $16,000,000. The permits this year therefore are practically one-fourth of those of the previous year.

The permits so far as received from various centers for August show up to better advantage, compared with the first month last year after the declaration of war, and from now on it is expected that the showing will be better.

MEMPHIS MARKET IN NORMAL CONDITION.

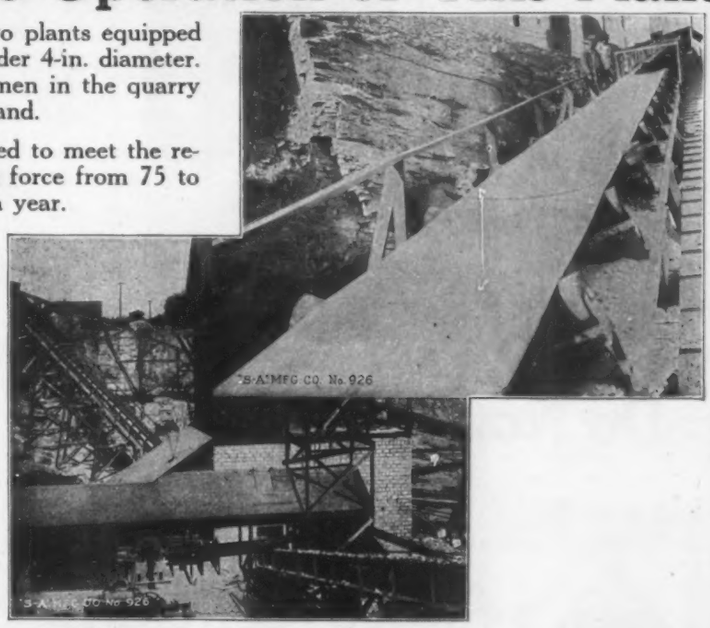
Memphis, Tenn., Sept. 4.—Inquiries are especially good on roofing materials, waterproofing, terra cotta, while the situation on cement holds its own. Sand and lime show about the normal September trade. The floods in Arkansas around Newport and other towns the last fortnight interrupted trade in that section, but when things dry up, it will be augmented somewhat.

W. W. Fischer, of the Fischer Lime and Cement Co., has returned from a trip North and reports autumn outlook favorable.

25 Men Saved in the Operation of This Plant

One of the large stone companies operates two plants equipped with No. 7½ Crushers capable of taking stone under 4-in. diameter. This formerly meant the employing of 25 extra men in the quarry just to break up the stone and load the cars by hand.

The installation of "S-A" Equipment, designed to meet the requirements, enabled them to reduce their working force from 75 to 50 men, and saved the company nearly $15,000 a year.



Here's How It Was Done

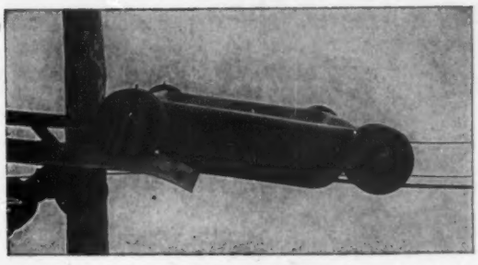
They installed a preliminary crushing plant, containing a crusher capable of handling stone 36x60 inches. This permits of loading by a steam shovel in the quarry and eliminates all hand-breaking of stone.

This preliminary No. 36 Crusher delivers to two 30-inch "S-A" Belt Conveyors which convey the stone to the two main crushing and screening plants. A logical and economical improvement made possible by a correctly-designed conveying system.

Stephens-Adamson Mfg. Co., Aurora, Illinois

New York, Chicago, Pittsburgh, Boston, St. Louis, Detroit, Salt Lake City, Los Angeles, Huntington, W. Va., Toronto

We design and manufacture conveying machinery for rock crushing plants, gravel washing plants, storage systems, etc. Also transmission and screening equipment, elevators, gates, feeders, car pullers.



WHAT WE DO IT WITH

Does It Pay to Haul Dead Load?

Although clearly set forth in Bulletin B we find the following point needs the emphasis of a special advertisement.

In the old type of tramway with underhung buckets the dead weight of the buckets alone is usually about equal to the live weight transported. But there are as many buckets returning empty as are going out loaded; hence there is twice as much dead weight being moved at any moment **in the cars alone** exclusive of hauling cable, as there is useful live weight. Each Lawson car on the other hand will transport a live load about six times its own dead weight. Allowing for the empties returning, this means that there is three times as much live weight moving at any moment as there is dead weight to carry it.

Put in another form this means that in the bucket tramways the dead load is **double the live load,** and in the Lawson tramway is **one-half the live load**—a ratio in favor of the Lawson transportation of 4 to 1. Moreover, this dead load, like "the poor, we have always with us," whether the tramway is running to capacity or not.

This is a bad matter, but worse remains, since the weight of the haul rope itself is usually twice as great for a bucket tramway as for the Lawson Tramway—and this again is non-paying dead load. All the above bears directly on the earning capacity. An amplification of this subject can be found in our Bulletin B under the heading of POWER REQUIRED.

Respectfully submitted,

AMBURSEN COMPANY (Tramway Department) 61 Broadway, New York

HY-RIB

for Roofs, Floors, Walls, Partitions, Ceilings, Furring, etc., is being demanded by discriminating architects, owners and contractors.

Do Not Overlook Such a Sales Opportunity

Every dealer in builders' supplies can please his customers by handling the Trus-Con complete line of Hy-Rib, Metal Lath, Steel Studs, Corner Beads, Base Screeds, Concrete Reinforcement, etc.

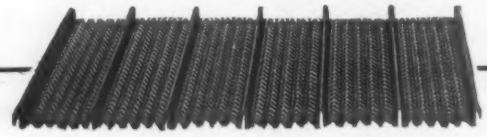
Write for prices, samples, etc.

KAHN Building Products — TRUSSED CONCRETE STEEL CO.

TRUSSED CONCRETE STEEL COMPANY

Dept. H-26 **Youngstown, O.**

KAHN Building Products — TRUSSED CONCRETE STEEL CO.



Cut Your Loading Costs in half by Using the

Link-Belt Portable Wagon Loader

Loading Gravel—a ton per minute

Now is the time to consider your plans for the coming season. Now is the time to ask yourself, "Does it pay me to load and screen by hand, or would it be more profitable for me to use a portable wagon loader?" We believe every dealer will ask himself this question during 1915. Here's our plan. You know all about your own business. We know all about wagon loaders—what they have done and can do. So let's get together and talk it over. Let us try to work out a plan to save you money and time, and help you give quicker and better service to your customers, in the handling of your coal, gravel, stone, etc. Our engineers are specialists in this work, and will study your problem, work with you, and tell you candidly before we ask your order where you can save money and how much. We make no charge for advice, layouts or estimates.

We Make a Loader for Every Purpose, $325.00 Up
For Sand, Stone, Gravel, Coal, Coke, Etc.

We started the business and know it from every angle. Write for Catalog 210

LINK-BELT COMPANY

PHILADELPHIA CHICAGO INDIANAPOLIS

New York	299 Broadway	Wilkes-Barre	2d Nat'l Bank Bldg.	Denver	Lindrooth, Shubart & Co.	Birmingham	General Machinery Co.
Pittsburgh	1301 Park Building	Detroit	911 Dime Bank Bldg.	Minneapolis	Link-Belt Supply Co.	Portland, Ore.	14th and Lovejoy Sts.
Boston	49 Federal St.	Cleveland	1304 Rockefeller Bldg.	New Orleans	Whitney Supply Co.	Brantford, Can.	Waterous Eng. Works Co.
St. Louis	Central Nat'l Bank Bldg.	Seattle	580 1st Ave. South	Knoxville	D. T. Blakey, Empire Bldg.	Toronto, Can.	Can. Link-Belt Co., Ltd.
Buffalo	698 Ellicott Square	Los Angeles	204 N. Los Angeles St.	San Francisco	N. D. Phelps, Sheldon Bldg.		

You Will Need a Stock of CERESIT to Supply the Fall Demand

Fall and Winter are when concrete, cement and stucco bear the hardest abuse of seepage, leakage, etc. Architects and engineers now recognize Ceresit's ability to make work of this nature *absolutely water-tight and dry*, and are incorporating it in their specifications for *Fall and Winter jobs*. That means a big, steady demand for Ceresit Waterproofing Compound *from you*—good, attractive profits *to you*.

And These CWCo. Products are always in demand:

Damp-proof Plaster Bond
Damp-proof Coating
Stone Backing
Weather-Wear Roof Coat
Ceresitol
Floor Hardener

You Get This Help

You receive co-operation in many various ways which enables you to make *quick, easy sales*. Architects have come to regard our engineering department as an adjunct to their business and place great confidence in our experts by letting them solve all their waterproofing problems.

Let us outline to you in detail *Ceresit Service*

Ceresit Waterproofing Co.
924 Westminster Bldg. Chicago

CERESIT
TRADE MARK REGISTERED

Excelsior Caen Stone Cement

Proves its acceptance by the U. S. Government, through its use in the Piqua, Ohio, Post Office, nearing completion.

Art and Cut Cast Stone

Sculptors and workers in this art proclaim it ideal for reproducing French Caen Stone color effect.

Machine mixing using natural color aggregate permits our guaranteeing uniformity of quality and permanent color.

Your eyes will not deceive you
So rather than talk about it, permit us to submit samples and prices.

The Cleveland Builders' Supply Company
Manufacturers **Leader-News Bldg., Cleveland, O.**

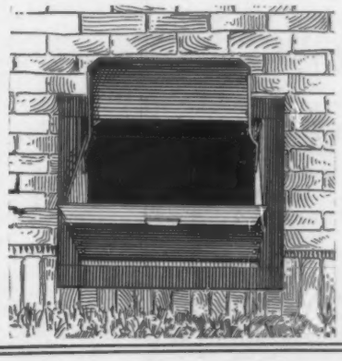
QUALITY AND SERVICE
THE CLEVELAND BUILDERS SUPPLY CO.
CBS

The Service and Sales Bureau

has proved to be of incalculable value in assisting our advertisers in writing up-to-date copy. This department was created and placed at the disposal of our advertisers for this purpose.

Are You Using It?

Your Reputation Is at Stake



In handling coal chutes you must be sure of their quality. If they break or get out of order on the job, the owner's building is damaged and you, Mr. Dealer, are censured for selling poor goods.

Kewanee
All Steel
Coal Chutes

are guaranteed against breakages. They protect your good reputation and give you a corking good profit.

Kewanee Mfg. Co.
Kewanee Illinois

Protect Your Walls—

Marvel Window Chutes

protect against coal haulers and burglars. See the wings! What's the use of a pouch, anyway? Safety first. Marvels lock automatically. Heavy and indestructible.

Mr. Material Man: If you are early enough you can have the exclusive agency in your city, and our prices are right. And the individuality of the Marvel Chute makes it easy to sell.

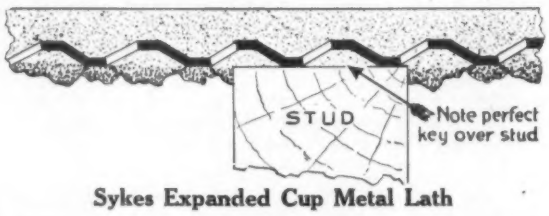
17 x 24, with glass, $9.00

5 other sizes. (A Marvel "Junior" is still cheaper.) Ask for Leaflet "R."

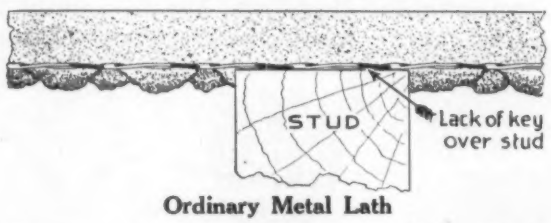
Interstate Mfg. Co.
Oskaloosa Iowa

Best For Interior
as well as for
Exterior Work

Sykes Expanded Cup Metal Lath gives greater durability by giving more weight. By its peculiar formation it reinforces the wall to a greater extent than any other expanded metal lath—it becomes a firmly imbedded backbone of strength. Note these illustrations.



Sykes Expanded Cup Metal Lath



Ordinary Metal Lath

Observe that one great superiority of Sykes Expanded Metal Lath over the common Expanded Metal Lath is that Sykes Lath extends **into the wall** ¼ inch and is therefore imbedded in the mortar. Sykes Lath is a Backbone to the wall; common lath is **on the back of the wall**—only a background for the plaster. The corrugation in the Sykes Lath makes a perfect reinforcement of the wall. Your wall will be much stronger, much more rigid, if Sykes Lath is used.

SYKES **Expanded Cup Lath**
Self Furring

More Weight Less Mortar More Durability

All grounds being measured from face of stud, not from face of lath, it is easily demonstrated that Sykes Lath requires **less mortar** than any other expanded lath—

1st—Because there will be less mortar back of the face of the stud, the key upon Sykes Lath being to a great extent **in the wall itself.**

2nd—Because the key on Sykes Lath is formed in a natural cup, therefore no mortar will be cut off and allowed to fall down back of the wall.

Sykes Expanded Cup Lath is heavier than others cut from same gauge—because of its wider strands. It is nearly one and one-half times as heavy as some metal laths of the same gauge now on the market. **Judge by weight and gauge—not by gauge alone.**

Sykes Expanded Cup Metal Lath saves money and adds to the wall's life. It keys perfectly; can't be applied wrong. Approved by U. S. Government for Post Office work; indorsed by architects; a favorite with builders and contractors.

Write for Free Booklet—"Metal Lath Specifications"—and for free sample of Sykes Metal Lath.

Sykes Metal Lath & Roofing Co.
508 River Road **Warren, Ohio**

IF you knew positively that you could free yourself from further bag trouble, and all delays and waste of money, you certainly would take steps toward that end. The Bates System Valve Bagger with valve paper bags for sacking Cement, Lime, Plaster, Alca, Ground Stone, etc., will do the work you want automatically and accurately fill and weigh every sack. 150 tons per day of lime—one machine.

Write for Particulars.

The Urschel-Bates Valve Bag Co.
TOLEDO, OHIO
BRANCH FACTORY: NIAGARA FALLS, ONT., CAN.

Kno-Burn
Expanded Metal Lath

Is the *Dealer's* Lath

1. Because it is made in 56 styles—enough types to fill the bill for any sort of job that may be required. This means that you need not "shop around" if you handle the North Western Line.

2. Because you can handle "Kno-Burn" without laying in an expensive and slow-moving stock. Our shipping system has been perfected to give any dealer prompt shipment.

3. Because "Kno-Burn" is being sold to the contractor, the architect and the home builder by national advertising. The **easiest** thing to sell is what your customer **wants.**

Get acquainted with the North Western Line by sending **today** for prices and literature.

North Western Expanded Metal Company
929, 407 S. Dearborn St. **Chicago, Ill.**

CONCRETE

Hydro Electric Plants of Concrete

One of the most important features of industrial development that has grown out of the wonderful field of electricity has been the harnessing of water-powers which have gone to waste in all past time. The conservation of the water power and its translation into hydro-electric plants for the generation of electric juice at the minimum cost amounts to one of the most important factors of future commercial and industrial conditions of this country. The waterfalls of the Carolinas and the Southern Appalachians, the water powers of the Pacific slope as well as those that are located in every other part of the country, are now receiving the attention of capable engineers, and capital is plentifully supplied for the extensive permanent improvements required with such a connection for the improvement of the natural water resources in many cases far removed from the path of commerce or the great centers of population.

It is one of the most notable present day applications of concrete construction of the most advanced type. It is not too much to say that the modern hydro-electric plant would be an impossibility apart from concrete. There is usually a dam or spillway which could be built of other material, but it is usually of concrete. The superstructure of the power-house might or could be built of other material, but it too is usually constructed of concrete. Farther than this it is pretty certain that the complicated water pipes and exceedingly heavy and strong construction necessary in the substructure, foundations and under-water portions of a power house could not very well be constructed with any substitute.

The underlying principle which introduces the value of the whole propaganda of hydro-electric improvements grows out of the fact that the cost of transmission of the power for a distance of hundreds of miles is so very low as to amount to merely the interest upon the installation of the poles and wires to connect the generators with the transformers at the place where it is to be used for motive power or for lights or for any other purpose which is now or hereafter to be developed for the employment of the electric current. Probably when the coal mines have all been exhausted the wires from the hydro-electric plants will conduct the fuel for warming the future cities that will be inhabited by people who come after us, for already the electric cookers are becoming popular and are said to be economical in more than one section where the price of the kilowatt from the hydro-electric plant has provided economical juice for this indespensable purpose. It is pretty certain that at some future time, not very far distant by any means, that all of the light and all of the power used will be supplied from the great water power improvements that are now being constructed wherever there is sufficient volume of water with enough fall to make the turbines turn around to drive the electric generators.

For many years Niagara Falls has been harnessed in this way, and a great industrial center of enormous power users and light users has sprung up as if by magic in the immediate neighborhood of the falls, while part of the current so generated is conducted by wires to many of the principal cities and towns of New York state, and as far as the city of New York itself. This was one of the earliest successful applications of the harnessing of water power in connection with the generation of electricity, and the great concrete flume is a part of the scenery of Niagara. It has now been in operation for about 15 years, has been inspected by thousands of visitors, amongst whom were many engineers and thinkers, who have found the way to make similar applications in other locations with about 100 per cent record of success.

In order to understand the use of concrete in hydro-electric development it may be well to consider a definite case. The White Salmon river development near Portland, Ore., which was recently constructed by the Stone & Webster Engineering Corporation, has been in operation for nearly a year.

White Salmon River in Oregon.

The White Salmon river in the state of Washington enters the Columbia river not many miles east

POWER HOUSE NO. 1, BIG CREEK DEVELOPMENT.

of the city of Portland, Ore. Back in the foothills, about three miles from its mouth, the White Salmon has been "harnessed" to a hydro-electric plant which is designed to develop 20,000 horsepower. The dam which creates the storage basin supplying the powerhouse is a mile distant. Rock for the concrete was found upon one of the banks—in fact, 400 feet above the river. Mt. Adams, 35 miles back, is supposed in past ages to have ejected the lava flow which cooled and solidified and so made the basalt used in the concrete. It is said to be good material. Not only did this lava furnish the aggregate, but it also supplied the raw material from which was manufactured the necessary sand. It was found simpler and cheaper to make the sand than it was to transport it from a distant sand bank. When the rock was crushed, it was shot down by gravity to the point of mixing. Indeed, the contractors took advantage of the elevated situation to transport the rock by gravity from the moment it was dragged up by a Bagley scraper to the chute leading to the crusher. Of course, the crushing for aggregate furnished sand in some quantity. It was necessary, however, to provide for its separation. At a point about 150 feet above the crest of the dam, two concrete mixers were set up. It was found possible to use the gravity chute for the transportation to the site of the dam of about 80 per cent of all the concrete. The two mixers worked about 10 hours per day and upon one day made the record of 720 cubic yards. The normal capacity at which the plant was run was 10,000 cubic yards per month. The dam is 125 feet high at its highest point and contains about 30,000 cubic yards of concrete. In sending down the concrete from the mixers, it was found possible to get the concrete out 285 feet from the abutment on the side of the mixers. Of the concrete which could not advantageously be chuted direct, part was conveyed by a cableway strung across the ravine to a hopper placed above the abutment on the far side. From this point, it was sluiced to the points of use. Some concrete was delivered to a hopper located in the middle of the dam, and then handled by derrick. All of the concrete employed in the construction of the dam, the reservoir, and the powerhouse was composed of the rock and sand aggregate as stated above mixed with Portland cement and hydrated lime according to the most approved formula for securing the greatest attainable density in the finished work and in securing the maximum amount of "flow" to the concrete mass, which characteristic was of notable value in the handling of such great masses over such a great distance by chute and for rehandling in hoppers located at a great distance from the mixers.

The power is not developed at the dam, but some 5,000 feet further down the stream. A long flume conducts the water from the dam to a concrete forebay. This is the reservoir from which the water drops down pressure pipes to the powerhouse. It is a big tank 40 feet in diameter. Its top is 10 feet higher than the crest of the dam, which provides for a depth of water over the crest. From the forebay down to the powerhouse is a 160-foot drop. Here is where the potential energy of the water is converted into kinetic energy. The pressure pipes, like the flume, are constructed of wooden staves.

Concrete seems to be almost indispensable in the construction of hydro-electric plants. Everywhere you turn, you find that concrete is employed. It is not always used in the flume, as the White Salmon development shows. This is probably due to the expense. Sometimes wood is employed for such purposes, sometimes steel pipe. But the powerhouse substructure is probably very seldom constructed of any other material than concrete. Concrete lends itself in fact to the complicated shapes that are here necessary. Something is needed that can be molded—and concrete is just that kind of thing.

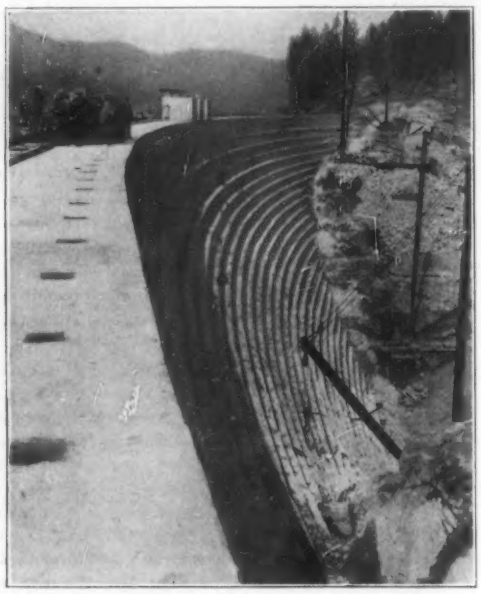
Big Creek in California.

The Big Creek Development in California is, if we take into account the completion of the plan, one of the very largest in the world. When the four powerhouses, two reservoirs and 25 miles of tunnel and other features are completed and full equipment installed, there will be a horsepower capacity of 350,000. This is considerably larger than the Keokuk Development on the Mississippi river even when that gigantic plant is equipped with its ultimate installation. The water area drained by Big Creek is only about 88 square miles in extent; but this is largely compensated for by the enormous total annual precipitation of 80 inches. Below the natural reservoir, the stream drops about 4,000 feet in the course of six miles. Here, then, the great power development is located.

The reservoir is a natural lake four and one-half miles long, one-half mile wide, and 120 feet deep, and contains about 2,310,000,000 cubic feet of water. So favorable is the natural site, that it would be only necessary to raise the crests of the three dams 50 feet beyond their present height to just about double the capacity of this reservoir.

But while nature had so splendidly provided water, reservoir and fall, she also located them far from the accessible regions. It was, in fact, considered rather better business to construct 56 miles of standard-gage railroad than to transport by mule

and burro the necessary materials, equipment and supplies. Two cable roads were constructed in addition at or near the mountain terminus of the railway. The one went up to the site of the reservoir; the other, down to the site of powerhouse No. two. Powerhouse No. one was located at about the level of the railway itself. When it is realized that this intermediate level is nearly 5,000 feet above the sea, and in the midst of a mountainous region where the peaks go much higher yet, it will be understood that communication with the low levels might easily be cut off in winter time. To provide against interruption of the work, large amounts of supplies were kept on hand. For example, a stock of 33,000 barrels of cement was kept in reserve with a proportionate amount of hydrated lime. The total amount of cement used on the entire plant amounted to about 186,000 barrels.



THIS CONCRETE DAM CLOSES ONE OF THE GAPS IN A NATURAL BASIN HIGH IN THE SIERRA NEVADA MOUNTAINS, WHICH SUPPLIES THE TWO POWER HOUSES IN LINE BELOW. THE STEPS ARE EXTERIOR TO THE BASIN OF THE RESERVOIR.

Dam No. one, one of the three closing the great reservoir, required 61,000 cubic feet of cyclopean concrete. This was placed in 60 days' time. The dam is 1,000 feet long and has a maximum height of 147 feet. At its top, the crest is 10 feet wide; at its bottom, the base is 80 feet in width. A trestle was constructed fully as high as the proposed crest, and materials were conveyed along its deck upon a standard-gage track. Storage bins received the materials dumped from the material cars; from these they were fed to nine concrete mixers below. The other two dams at this level are smaller, containing respectively 31,000 and 31,300 cubic yards of concrete. All three dams have vertical faces on the upstream side; on the downstream side, the faces are arranged in the form of steps. The stepped faces are provided in view of the future elevation of the crests, when the steps will supply suitable support and contact surface for the new material. The ultimate increase in height is possible, in so far as suitable foundations are concerned, because all three dams are built on solid living granite.

The intake tower which receives the water from the reservoir is built of reinforced concrete. It is 104 feet high and has an internal diameter of 20 feet. The walls are two feet thick.

The power is developed by two separate drops. The one to powerhouse No. one has a height of 1,900 feet. The second stage, down to powerhouse No. two, has an effective head of 1,780 feet. The turbine units employed in these power houses are among the very largest in the world. Each has a capacity of 20,000 horsepower.

Dam No. four impounds the spent water from powerhouse No. one and the flow of Pittman creek, a small stream which empties into Big creek just below the powerhouse. This dam is also of concrete. It is 288 feet long and 73 feet high. Below this dam, a surge chamber is provided. Its concrete shell reaches to a height of 120 feet.

Parr Shoals in South Carolina.

The Parr Shoals development not far from Columbia, S. C., is now being constructed by the J. C. White Engineering Co. of New York, and is an example of up-to-date construction in time and character.

At Parr Shoals, there are to be ultimately eight principal turbine units and two exciters. Three of the large units are being omitted at present, awaiting future development of the market for current. Each has its corresponding conduit for the entrance of water to the wheel and for its exit into the tail race. The substructure of the powerhouse is thus cut up into a multiplicity of compartments. The substructure is really a part of the dam; but it must perform more severe duties. That is, it must do all that a dam does plus certain other services.

The turbine wheels at Parr Shoals rotate in a horizontal plane on a vertical axis. The stream of water flowing through is, accordingly, moving horizontally when it enters the wheel. As the wheel derives its energy from the pressure and velocity due to the head back of the powerhouse, the roof and sides of the concrete conduit leading to the wheel will be under pressure. Above, there is little or nothing to balance this pressure except the weight and strength of the overhead wall of concrete. In fact, the concrete in the roof is subjected to a tensile stress, the very thing that plain concrete is ill adapted to sustain. It will readily be understood then that a sane and sufficient method of reinforcement becomes advisable.

As the channel merges into the wheel chamber proper, it is transformed into a circular conduit enveloping the wheel. The floor, roof and outer vertical wall are of concrete. The inner vertical wall consists partly of concrete and partly of the metal guides which split up and direct the water onto the blades of the wheel. Above and below this circuit of guides, the wall is concrete. The circular channel contracts perpendicularly to the flow of the water as it sweeps around. The contraction takes place both vertically and horizontally. A little consideration will afford some explanation. As the circuit begins, consumption of water also begins; and as the stream gets further and further around, there is less and less water to carry. Finally, as the circuit is completed, the last of the water is directed through the guides. The guides are each of them movable on a vertical axis; but are controlled collectively. By means of mechanical arrangements connected with the governor, they open and close in accordance with variations in conditions. Under some conditions, they will close suddenly. This means the checking of a considerable stream flowing, it may be, with a considerable velocity. The result will be a severe bursting effort of the confined water. At once, the roof of the conduit, both through the region of approach and in the circular portion, will be subjected to a strong upward thrust. The side walls will be stressed outwards. These side walls in the region of approach to the wheel are really partition walls separating the conduit from the neighboring conduits. At Parr Shoals, these partition walls are strongly reinforced. So also is the roof. A further need for reinforcement in the side walls is due to the fact that provision must be made for independent operation of the units. A partition wall may, accordingly, be subjected to an unbalanced pressure—water being present on one side, but not on the other.

The portion of the conduit between the wheel and the tail race is one which is relieved of severe pressures. But the draft tube, as this portion is called, is a difficult form to produce. This tube receives the water from beneath the wheel. Here the water has a rather high velocity, which it is desired to reduce by the time it passes out. The tube is for this reason enlarged as the point of exit is approached. Further, the stream enters flowing vertically; it leaves, flowing horizontally. The conduit, accordingly, bends through an arc of 90 degrees. The wooden forms are a rather difficult piece of carpentry. They may, however, be repeatedly used for duplicate conduits.

At the rear of the power house, it is necessary to guard the entrance to the approach tubes in order to provide against the introduction of floating wood and ice and the like. This is done by means of a metal screen. Within the region guarded by the screen, is a gate by means of which the approach conduit may be shut off and the corresponding unit put out of action. This gate is a metal diaphragm which turns on a horizontal axis on the under lip of the approach conduit. When open, this big plate rests its outer edge at a point somewhat below the level of the hinge on which it turns. A chain or cable is attached to the outer edge. When it is desired to effect a closure, it will be connected to a winding drum above and the door lifted and thus shut. When in a closed position, the door leans a little in the direction of upstream. The unbalanced pressure of the water in the reservoir or lake holds it securely. In order to open it and resume operations with the corresponding unit, water is let into the approach conduit in order to create a balancing pressure. This means another complication in the concrete work. A kind of by-pass is arranged in the concrete masonry which serves to admit water from the reservoir to the interior of the intake, as the approach conduit is termed. This is of comparatively small cross-section, and so its gate is readily opened and the water allowed to enter in a moderate manner.

At Parr Shoals, the partition walls between intakes are 5 feet thick. Between consecutive turbine wheels, however, the minimum thickness of the wall separating wheel chambers is less. The intakes measure 13 feet from floor to ceiling,

FORM FOR CONCRETE ANCHOR FOR PRESSURE PIPING.

and are 25 feet wide. From the lower lip of the intake to the axis of the wheel is 40 feet. From this axis to the outer face of the front wall of the substructure is 17¼ feet. Consequently, we have a horizontal conduit of about 57 feet in length—remembering the overhang to the rear—to reinforce against horizontal pressure to either side along the intake and in radial directions in the region of the wheel chamber. Vertical rods are placed pretty much everywhere along a plan

VIEW OF COLUMBIA RIVER DAM, 471 FEET LONG, 125 FEET HIGH.

COLUMBIA RIVER POWER HOUSE FROM TAILRACE.

line running forward from the entrance to the intake, curving round the wheel chamber and returning to the rear of the substructure. This line has the form of a very tall U lying flat. The horizontal reinforcement, which is here very important, is a series of such Us arranged one above the other, each U consisting of a single unbroken piece of steel. The roof is reinforced by transverse steel rods extending from near the joint in the roof slab over the central line of the partition wall on one side to a similar point on the other side. These are arranged parallel to one another at frequent intervals from one end of the intake to the other. They are not perfectly horizontal, but dip down and approach the under face or ceiling until the thickness of concrete separating them from the chamber is 4 inches. The thickness of concrete between the chamber and the U-shaped rods is, in the region of the intake, 6 inches. It should be mentioned perhaps that the concrete in the roof and side walls of the intakes is a 1-2-4 mixture; while the general formula for the plant is 1-3-6. It is probable that the richer mixture was adopted here with a view to imperviousness.

The Sanitary District of Chicago has been for three years constructing and have now about completed an auxiliary or additional channel from South Chicago to enter their main channel near Lemont, Ill., for the purpose of increasing their water supply to about double the present capacity of their main channel, so as to increase the capacity of their immense hydro-electric plant at Lockport, the terminus of the Chicago sanitary canal. The fall of water from Lake Michigan level to the upper basin of Joliet is approximately 35 feet, and this was harnessed shortly after the completion of the new sanitary channel about 10 years ago and a great volume of electrical energy has been produced to supply the City of Chicago, which will doubtless eventually be marketed very cheaply, since the district is owned by the municipality of Chicago and the actual cost of production merely amounts to nothing beyond the interest upon the investment.

It is said that the hydro-electric plant at Lockport will be doubled in its capacity as fast as the market demand for electric juice develops to make such a public improvement in any way feasible, for the additional water supply coming from the new Sag channel will supply all of the potential energy needed for such purpose.

The Sanitary District of Chicago is, in fact, one of the most extensive producers of electric energy in the world, and when all the extensions now contemplated are brought into service it will far exceed any other similar undertaking as to the volume of its output.

The recent completion of the Keokuk dam in the Mississippi river with its accompanying hydro-electric installation has shown the possibilities of such river improvements, and there are repeated rumors to the effect that the falls of the Ohio river at Louisville are to have a similar improvement installed in the very near future. Cumberland falls in eastern Kentucky is a tremendous water-power yet to be developed, the falls of the Ausable river in the northern Adirondacks, and countless other lesser natural water-powers are waiting development under the propaganda which is nation wide in its importance, and all embracing in the influence it will have on the future industries of this country.

Concrete in all of its various forms has made possible this great progressive step for the benefit of future generations, and it is given to us at the present time to promote and further all of the projects of this kind that can be developed, because it is good business for us now and a work well worthy of our best efforts.

Texas Communities Praise Concrete.

Galveston, Tex., Sept. 4.—One of the most interesting features of the result of the recent tropical hurricane that swept over Galveston, Houston and other gulf coast towns of Texas is the study that affords in building construction.

"Concrete saved Galveston."

That is the statement which one hears on every side here. But for the solidity and impregnability of the seawall which stretches along the city's front on the gulf side for several miles, old Neptune would have probably swept the thickly populated part of the island almost clean. There is no means of knowing how terrific was the pounding which the seawall received during the several hours that the storm raged. Probably no other kind of hand-made agency would have withstood it. The force of the sea tore great holes in the ground on the shore side of the sea wall and lifted over it giant boulders that came from no one knows where. The 18-foot high protection works did its full duty and was the means of saving thousands of lives and preventing the destruction of millions of dollars' worth of property.

The $2,000,000 causeway, which is of reinforced concrete construction, stood through the terrible ordeal with a perfectness that is astonishing to even the most expert builders. It emerged from the affray with the wind and waves almost unscathed. But for the fact that the sand approaches of about 2,000 feet at the two ends of the structure were washed away the causeway would not have been out of commission more than momentarily, due to the little readjustment that was required of the lift bridge, in its center.

It was the reinforced concrete buildings in Galveston, Houston and other towns in the storm area that came through the ordeal with the least damage. The concrete work itself of these structures was unharmed, the damage being confined chiefly to the roofs and other parts, which were of metal or wood. One of the four-story business buildings in Galveston is constructed of crushed oyster shells, mixed with cement. This structure stood the 90-mile blow without being damaged.

In Houston, where several millions of dollars of damage was done by the storm, the buildings which suffered least harm were those of concrete construction. This condition applied to business buildings as well as to manufacturing plants and residences.

It is the belief of builders who have viewed the results of the hurricane that concrete was placed to the supreme test and that it has proved beyond a doubt the wisdom of using that material in the gulf coast region that is liable to be visited by hurricane winds of great velocity.

Aside from the protective works of Galveston, one of the most notable instances of the proved strength of concrete in the matter of storm resistance was that of the new $2,000,000 elevator of the Southern Pacific Railway Co. here. It is stated that the big concrete elevator at Texas City also emerged from the terrific hurricane practically unscathed.

NEW YORK DEALERS' OUTING.

(Continued from page 15.)

M. D. McMullen, Allentown Portland Cement Co., Bethlehem, Pa.
J. A. Feeks, Lehigh Portland Cement Co., Allentown, Pa.
T. W. Curtis, Empire Gypsum Co., Rochester, N. Y.
Thomas W. Dyer, Alpha Portland Cement Co., Buffalo, N. Y.
F. M. Coogan, Secretary Alpha Portland Cement Co., Easton, Pa.
R. L. Swett, Sales Mgr. Lehigh Portland Cement Co., Allentown, Pa.
L. E. Browning, Lehigh Portland Cement Co., Buffalo, N. Y.
Frank W. Douglas, Glens Falls Portland Cement Co., Albany, N. Y.
W. S. Wing, Eastern Sales Mgr. Universal Portland Cement Co., Pittsburgh, Pa.
J. H. Borkey, Elk Fire Brick Co., St. Marys, Pa.
C. W. Clewell, Elk Fire Brick Co., St. Marys, Pa.
N. A. Kelly, Universal Portland Cement Co., Rochester, N. Y.
L. G. Powell, Bostwick Steel Lath Co., Niles, Ohio.
Allen Blake, Atlas Portland Cement Co., Rochester, N. Y.
W. G. Zipp, Saylor Portland Cement Co., Rochester, N. Y.
Herbert Grey, Lehigh Portland Cement Co., Rochester, N. Y.
S. G. Taylor, Lehigh Portland Cement Co., Rochester, N. Y.
C. S. Nellis, Thomas Millen Co., Syracuse, N. Y.
J. C. Nellis, George W. Pack & Son, Syracuse, N. Y.
Guy C. Nellis, George W. Pack & Son, Syracuse, N. Y.
H. W. Flickinger, Crescent Portland Cement Co., Buffalo, N. Y.

CEMENT

The Cement Barometer.

Trade conditions everywhere are about the same as they were thirty days or sixty days ago. At times there is a revival in some particular section where cement is purchased in limited quantities, but the building material problems do not evidence, as you look at the barometer, anything more than a 75 per cent volume of business. The trade generally well know the price situation, and in some sections you will see an effort being made to get something like a reasonable price for the product, but with the volume off and prices too low as an average there is certainly no incentive for the manufacturer of cement to run mills over 60 per cent. That being the case, and if the improvement in business does not materially show up within the next thirty or sixty days, it looks as if cement manufacturers generally ought to keep the curtailment idea in view every day and not run any more than necessary to maintain a stock which will permit of taking care of orders from day to day.

There is no incentive at the present moment for increasing stocks. The cement producers of the United States should finish up the year with bins pretty clean of cement. You may figure out it costs less to run all the plants full tilt and in that way take care of your overhead charges and keep within the bounds of good business. It is reasonably sure that notwithstanding the immense crops and large amount of money coming into this country from Europe there is very little now building being provided for and undertaken. For example note Chicago earlier in the spring. But that was due to the big strikes which almost stopped the wheels. The consumption of cement generally is not what it should be, and if the man who is only operating his plant 50 per cent or 60 per cent cannot keep a bunch of orders ahead, how is the operator running full time going to get orders enough to keep busy? There is only one answer; he must buy orders. Under present conditions will it pay anybody to buy orders?

COPLAY BUYS NORTHAMPTON COMPANY.

Announcement was recently made of the purchase by the Coplay Cement Manufacturing Co., the oldest concern of its kind in America, of the Northampton Portland Cement Co., for a purchasing price said to have involved a million dollars. The Northampton plant will be immediately modernized so that the capacity of the combined mills will be increased from 5,000 to 8,000 barrels per day.

The Coplay company was founded by the late David O. Gaylor, the pioneer who discovered the process of producing Portland cement. It is now owned chiefly by Philadelphia capital. The president is Ferdinand Loeb and the treasurer is Joseph L. Berg, both residents of Philadelphia.

A notice has been posted by the Alpha Portland Cement Co., announcing the closing of its mills at Alpha, N. J., for an indefinite period of time. This means that about 350 men were thrown out of employment. It is thought that over production in the cement market caused the closing of the mills.

New Apparatus Determines Fineness of Cement.

Three years' experiments intended to produce a means of determining the exact fineness of cement have resulted, at the Bureau of Standards, in the developing of an apparatus which is effective for this purpose.

In the manufacture of Portland cement clay or shale and limestone are ground together and "burned" in rotary kilns. The cement comes from the kilns in the form of hard, black, semivitreous lumps, or "clinker." When pulverized this clinker becomes a grayish powder, which is the familiar article of commerce employed for a great variety of purposes in practically every type of building construction.

It has long been known that the fineness to which the cement is ground is one of its most important characteristics, and consequently specifications require that 75 per cent or more of commercial cement shall pass through a No. 200 sieve, which has 40,000 openings per square inch. This is the practical limit of mechanical sieves in respect to fineness.

It is very important to have some means of measuring directly the entire state of subdivision of cement; in other words, to discover just what percentage of the material is made up of particles of certain definite sizes. If such a division can be made, it should be possible not only to compare the efficiency of different grinders, but also to determine what degree of fineness must be attained before the cement becomes "hydraulically active"—that is, capable of combining with water to form the binding material in mortar and concrete.

The apparatus devised by the Bureau of Standards consists of a vertical brass pipe, about three inches in diameter and five feet long, at the lower end of which is attached a glass bulb in which the cement to be tested is placed. Air at constant pressure is blown into the cement through a glass tube or nozzle in the side of the bulb, and as the air can escape only through the vertical stack it carries with it the cement dust, which is caught in a flannel hood surmounting the stack. The air flow in the stack is very uniform, and in a short time all the dust will be removed from the cement, leaving a granular residue in the glass bulb. This residue is weighed and the amount of dust is determined by substracting the weight of the residue from that of the original sample of cement. Different grades are obtained by using different-sized nozzles, and thus a number of separations can be made in the very fine portion of the cement. With the aid of the microscope the size of the largest particles in any given separation can be readily determined, and in this manner the apparatus is standardized without reference to the size of the nozzles and other parts of the apparatus or the air pressure used.

It is found that the cement "flour"—that is, the portion of cement which contains no perceptible grit when rubbed between the fingers—consists of particles less than 0.0007 inch in diameter. The apparatus is called the air analyzer, and may be used for separating and grading any hard-grained materials, such as ground quartz, emery, and other abrasives. The air analyzer in modified form is also capable of separating many other powders, for example, paint pigments, plasters, clays, and similar materials.

Steam Test for Cement Inconclusive.

The high-pressure steam test of Portland cements has been the subject of experiments by the Bureau of Standards, Department of Commerce, and the results are given in Technologic Paper No. 47, by R. J. Wig, engineer physicist, and H. A. Davis, assistant engineer physicist, just issued by the bureau. A full description of the numerous tests carried out under the direction of the bureau is given, with the general conclusions announced that cement passing the high-pressure steam test is not superior in cementing quality, as determined from the compressive strength of concretes, to cement that fails to pass this test; that cement passing the high-pressure steam test does not make more durable or permanent concrete than cement which meets the requirements of the standard specification, but fails to pass this test, and that for practical work under normal conditions of construction the results of this investigation fail to show that the high-pressure steam test is of value as a means of determining the ultimate soundness of concrete.

Other conclusions arrived at which point to the occasional employment of the high-pressure steam test are that it should be made on all cements that are incorporated in cement, mortar, or concrete products which are to be cured in steam at pressures above atmospheric, and that it may be of value as forecasting the behavior of neat cement or a very rich mortar when exposed under normal conditions in dry air.

It is explained in the paper that unsoundness of a Portland cement, which is evidenced with age by a lack of cohesion and strength, may not be apparent for weeks or months after the cement is hydrated. This fact created a demand for an accelerated test of soundness, in answer to which a large number of such tests had been proposed. All accelerated tests are designed to hasten the action of any expansive constituents of the cement, producing thereby evidence of unsoundness in a few hours or days.

It is the general opinion that the primary cause of unsoundness in Portland cement is attributable to the presence of free or loosely combined lime. Since there is no chemical means by which the percentage of free lime in cement may be determined, and the identification of this constituent by optical means is difficult and limited, investigators have endeavored to find an economical physical test that would detect the presence of free lime in its dangerous form where it is liable to cause disintegration, cracking, and weakening of the cement.

Several railroads and other corporations adopted the high-pressure steam test for their specifications, bringing about considerable controversy between its advocates and cement manufacturers. Many of the latter refused to furnish cement upon a specification which included this test, believing it to be an abnormal one, not in any way measuring the relative soundness or cementing value of the Portland cement as used normally in concrete. The work of investigation reported by the Bureau of Standards was limited to a physical investigation of the use of high-pressure steam as a means of determining the soundness, both as a qualitative and quantitative test.

Copies of this report may be obtained by addressing the Bureau of Standards, Washington, D. C.

The Canadian Cement Industry.

During the past 15 years the consumption of cement in Canada has increased from 663,942 barrels in 1900 to 7,013,885 in 1914, reaching a high water mark in 1913 when the consumption was 8,912,898 barrels, or 1,559,757 tons.

The production of cement in Canada during the past few years has included an output of Puzzolan cement, made from blast furnace slag at Sydney, N. S., and a small production of "natural Portland" made at Babcock, Manitoba, 75 miles southwest of Winnipeg, on the Canadian Northern Railway.

The existing price is $1.50 on the track in carlots, which is half a dollar per barrel cheaper than in 1900. Also there has been a saving to the consumer in freight rates due to the increased number of cement plants. The Montreal price at present is about $1.60; Toronto, $1.50; Winnipeg, $2.20; Calgary, $2.30, and Vancouver, $2.35. These prices show reductions of as high as 75 cents in 10 years.

Since 1900 many cement companies have failed. The Colonial Portland Cement Co., Wiarton, failed, was reorganized, and failed again; the Imperial company of Owen Sound failed; the Maple Leaf company went out of business; the Superior company failed; the Kirkfield company defaulted its bonds and closed down; the British Columbia company operated a short time and ceased operations; the Standard company was reorganized, buildings started but never completed; the Grey & Bruce and the Sun companies of Owen Sound both failed; the Edmonton company's directors are reported to be applying for a receivership; the Western Canada Cement & Coal Co. failed.

In the period referred to 11 companies have, for some reason or other, ceased to exist. Of these three were new mills and there have been two other new mills erected at Todd Inlet and St. Marys, which are operating.

Edison Plant to Be Remodeled.

The cement plant of the Edison company, located at New Village, N. J., is to be entirely remodeled, according to well-founded reports which have been circulating in the cement trade in the eastern section of the country. It is said that the plant will be operated on an entirely different scale from any other cement plant in the United States.

It is understood that Thomas A. Edison, one of the chief owners of the plant, has recently conducted successful experiments regarding a new system of manufacture, and that this will be placed into operation as soon as possible.

The plant is not in operation at the present time, with the exception of one department, which is burning limestone for fertilizing purposes. A considerable force of men will be put to work remodeling the plant, particularly the conveyors, and by next spring the mill will be turning out cement by the new process.

FORCED TO USE PAPER SACKS.

The German government has prohibited the manufacture of cotton sacks and as the stock of Jute is exceedingly small, cement and lime manufacturers are obliged to use paper sacks. It seems, however, that on account of the forced circumstances improvements are quicker made than usual. Building material manufacturers and dealers claim that the paper sack has reached its point of perfectness in Germany. The Continental Papersack Factory, Ltd., of Krappitz has succeeded in manufacturing a paper sack, which is absolutely waterproof and which according to testimonials of several of the largest lime and cement manufacturers meets the requirements in every respect.

Clever Application of Familiar Names.

A. R. Hirst, State Highway Engineer of Wisconsin, was among the prominent citzens of that state who did much to make agreeable and instructive the visit of the association to Milwaukee county following the spring meeting in Chicago. When the members were entertained at the Milwaukee Automobile Club, Mr. Hirst delivered a brief address, in which he introduced the names of many prominent cement companies in the clever fashion:

I would have been indeed a wise old "Owl," in a class with the immortal "Atlas" or "Medusa" or some other "Dragon" or "Giant," if, when I first visited, four years ago, the "Wolverine" state and saw the wonderful roads in its great county of Wayne, I had predicted that our Milwaukee county, "Peerless" among the counties in the "Northwestern" states, would so soon challenge her supremacy.

Gentlemen, the roads we have seen are a wonderful example of what a "Universal" spirit of coöperation, "cementing" together all interested, will do to accomplish "concrete" results.

Father "Marquette," if he were with us, would indeed say that we have discovered a "Neway to go," and if the "Wyandotte" and "Huron" had wandered from their beloved "Lehigh" valley in "Pennsylvania," past the "Wabash" which "Saylors" sometimes use, and reached here, they would have believed that an "Edison" had at last discovered the "Alpha" and "Omega" of county road materials and would have blessed his name, even if the new kind of trails were "Kuelling" on their feet and made them wish for "Vulcanite" moccasins.

From the "Peninsula" of Cape Cod, west through the "Knickerbocker" state, the use and fame of Milwaukee concrete roads have spread until today, instead of saying "Chicago, Aye Aye," road users are saying "Milwaukee, hurrah!"

MARKETING CEMENT IN BRAZIL.

Consul General Alfred L. M. Gottschalk, Rio de Janeiro, writes that sacks are objected to as containers for cement largely because most of the unloading is done into lighters. Customhouse delays often make it necessary to hold the goods in the lighters for days—sometimes weeks— and in a country of torrential tropical rains there is great danger of damage. The use of hooks by the stevedores on cement bags results in further loss and damage. Besides there is a certain traditional preference for barrels. Distributing costs to local markets are extremely high. Terms of payment on ordinary merchandise in ordinary times are usually 60 to 90 days to local consumers of good credit. Most American cement that comes here, however, is sold by manufacturers for cash on delivery aboard vessels in New York to export houses there. They in turn extend the usual credits to the market here, sometimes directly but usually through their agents here. At present there is a strong tendency to shorten credits. Return cargoes are very hard to get.

The Iola Portland Cement Co. recently received one of the biggest contracts in the Kansas City section. It is furnishing the United States Reclamation Service with about 35,000 barrels of cement which is being shipped into the Western states. The new addition to the Ford Motor Car Co.'s factory at Kansas City is another contract that will use nearly 20,000 barrels of the Iola cement.

Work on the new power station to replace the one recently wrecked at the Knickerbocker Portland Cement Co.'s plant at Hudson, N. Y., is well under way. According to Harvey H. Ward, sales manager, it will be possible to operate the plant to capacity about Nov. 1.

Ecuador Favors American Cement.

Consul General Frederic W. Goding, of Guayaquil, Ecuador, states that the construction of culverts and abutments for new railway bridges, the work on the sanitation of Guayaquil, and a recently promulgated municipal building ordinance requiring the foundations of all new buildings erected to be of concrete, have combined to create a considerable and permanent demand for cement in Ecuador.

The amounts and value of imports of cement into Ecuador in 1914, with the countries of origin, were: Belgium, 61,729 pounds, $213; Germany, 3,522,074 pounds, $14,388; United Kingdom, 41,731 pounds, $246; United States, 2,592,051 pounds, $12,060; total, 6,217,585 pounds, $26,907. The figures for 1915, when published, will show greatly increased imports. Cement is not manufactured in Ecuador and there are no import duties.

Although American cement is at present imported almost exclusively, owing to war conditions, there are serious problems relative to its sale after the war that ought to be solved. Most of the American product is shipped to Ecuador via Panama, and on reaching Guayaquil has been handled six times, the loss having been known to reach 40 per cent; when arriving via Cape Horn there was practically no loss, the same being true of the cement arriving from Europe which had been handled twice. Cement reshipped to the interior cities in containers previously damaged suffers a loss which frequently is considerable.

The wood staves of American origin are much inferior in strength to the European, and sufficient care does not seem to be exercised in the manufacture of American cement barrels. The empty barrels are sold locally for shipping containers, those of German and British origin in good condition bringing about 19 cents each, whereas the American barrel never sells for more than 14 cents. The real needs of this trade are steel barrels with wood heads, for when shipped in them the cement arrives here with no loss, and while the cost may be a trifle increased, such a barrel will sell here as a shipping container for at least 48 cents. As goods are sometimes exposed to rain here for three or four months, cement in steel barrels would have the advantage of perfect protection.

Notwithstanding that during the period when European cement was brought here, costing c. i. f. about 36 cents in German steamers, and in sailing vessels about 53 cents less than the American product, the latter was always preferred, owing to its slower setting qualities, the European brands, which set more quickly, requiring to be worked much more carefully. The names of companies using cement may be obtained from the Bureau of Foreign and Domestic Commerce or its branch offices.

New Cement Plant for California.

El Paso, Tex., Sept. 4.—The Southwestern Portland Cement Co., of El Paso, will soon begin the construction of a new cement manufacturing plant at Victorville, Cal., to cost $500,000. The building of the new plant was authorized at a recent meeting of the stockholders of the company held here. When the company took the preliminary steps towards constructing the California plant a few months ago the minority stockholders obtained a temporary injunction in the district court here restraining it from carrying out the plans. This injunction recently became inoperative because the indemnity bond, fixed at $20,000, was not filed with the court by the minority stockholders. The company owns a large site and a big deposit of shale material for the proposed mill at Victorville, it is stated. The new plant will be equipped with modern machinery and its product will go largely to supply the demand for cement in California.

LIME

Action of Clay in Lime Mortars and Plasters

BY ALBERT ZIMMERMAN.

It has been generally accepted that the clay contained in the sand used for lime mortars, was objectionable, as it reduced the strength of the mortar and caused shrinkage and cracking, and the preference has been given to sand that was free from clay.

While this may be true for excessive proportions of clay in the sand, I found that smaller quantities have a very marked influence to give the mortar better strength, where the mortar had been aged for 3 to 4 weeks or longer, which indicated that there might be some chemical change in the clay, by the action of the lime, and form combinations of alumina and silica with lime.

To find what action the lime had upon the clay in presence of moisture, the following mixture was made:

	grams
High Calcium Hydrated Lime	25
Pulverized Kaolin Clay	10
Distilled Water	100

The mixture was kept at the ordinary room temperature and occasionally shaken. For the first week a quantity was daily taken and tested for alumina, that the lime might have liberated from its silica combination in the clay. Up to the second week no free alumina could be detected, but at the end of the third week an amount of alumina was separated which was equivalent to 5.93 per cent of the clay, and at the end of the fourth week this increased to 8.30 per cent. The liberation of the alumina was clearly indicated by thickening of the mixture, as the alumina set free, increased in proportion.

While this test showed that the clay was decomposed into its constituents, alumina and silica, it did not indicate the further combining of the lime with the alumina and the silica to form calcium aluminate and calcium silicate, and as no method by chemical analysis is at hand to show the presence and quantity of these in a mixture of this kind, this was proven by making a physical test for strength, as it was found that when alumina was added to hydrated lime, it gave the lime higher strength. Freshly precipitated alumina in the proportion of two per cent was added to hydrated lime, which was formed into a soft paste with water and left to dry slowly by exposure to the air, and this mixture was found to show greater strength than that indicated by the hydrated lime only. The influence of the alumina is much increased by longer contact with the lime in presence of water and a rise in temperature also increases it. The action of the alumina for greater strength, in lime mortars and lime plasters was also demonstrated in a practical way. The same method was applied to silica, by mixing freshly precipitated silica with hydrated lime to a paste with water and left to dry slowly by exposure to the air, this also added strength to the lime, but to a lesser degree for the same length of time in comparison to the alumina, and the reaction was also stimulated by longer contact in the wet form and also by the increase in temperature, but the indications would be that there is less affinity between the lime and silica than between lime and alumina under the same conditions of exposure.

The kaolin clay used in the tests was found by analysis to contain 59.85 per cent alumina and 40.00 per cent silica.

To check the proportion of the clay soluble in dilute hydrochloric acid, this was estimated and found to be 0.08 per cent of the weight of the clay. The clay being heated to boiling with dilute hydrochloric acid, the solution filtered, ammonium chloride added, then ammonia water and the precipitate collected, washed, dried, ignited and weighed. This test was repeated and the acid solution evaporated to dryness in contact with the insoluble clay, the residue again treated with dilute hydrochloric acid, heated to boiling, filtered and treated as above, and the residue then weighed 0.99 per cent of the clay, and consisted of alumina and iron oxide.

The hydrated lime dissolved in dilute hydrochloric acid, and precipitated by ammonia water in the presence of ammonium chloride, the precipitate, collected, washed, dried, ignited, and weighed, was equivalent to 0.72 per cent of the weight of the hydrated lime, and consisted of alumina with smaller quantities of iron oxide.

In estimating the alumina liberated by the lime from the clay, in the clay-lime mixture, this was heated to boiling with an excess of dilute hydrochloric acid, to the filtrate ammonium chloride was added, then ammonia water, the precipitate collected, washed, dried, ignited and weighed and from this weight was subtracted the weight of the alumina and iron oxide separated from the lime and the clay, which then gave the weight of the alumina liberated by the lime from the clay.

In all the tests the temperature, volume of dilution, the proportion of hydrochloric acid, ammonium chloride and ammonia was kept as closely as possible alike in all the tests, to prevent any variation of the results which might have been caused by different concentration of the solutions of the reagents and also the temperature.

The results here given would also indicate why mortars made by the older method of storing them protected from the air, to age them for a greater length of time, showed such excellent strength, and this undoubtedly was caused by the action of the lime upon the clay to form combinations with alumina and silica.

While it is evident from action of hydrated lime upon clay, that calcium aluminate and silicate are formed, these do not seem to have the same constitution as the calcium aluminate and silicate which are the active constituents of portland cement, from observations that were made by adding smaller proportions to hydrated lime, as the cement did not add any strength to the lime mortar and with higher proportions of 15 per cent to 20 per cent of portland cement of the hydrated lime, while at first there seemed to be better strength, but after the lapse of six months the mortar and plaster were soft and friable with complete loss of strength and very much inferior to straight hydrated lime mortar or plaster. This condition, however, was changed when the proportion of the cement was 50 per cent or more, where the effects of the cement were very much better, giving much strength and firmness, and where only smaller quantities of the cement are replaced by the lime, equivalent to from 10 to 20 per cent, there are valuable properties added to the cement without reducing its strength to any extent, as shown by many prominent authorities upon cement. It might be added that in these tests made with smaller proportions of cement added to hydrated lime, the sand used for making the motar was free from clay.

The study of the action of the lime upon the clay was made in view of the observation made with different kinds of sand used for making lime mortar, some containing no clay and others containing varied proportions of clay, with results, showing that sand which contains clay made a mortar that was of better strength. While the tests have shown that the action of the lime upon the clay does not begin until after the second week of the mixing of the mortar, it was found that mortar made with sand containing clay, when used without ageing or curing, was also of a better strength, but to a lesser degree, and the clay may cause this effect by retention of the water by the motar for a greater length of time and allow of a more prolonged action of the carbon dioxide of the air to carbonate the lime, upon which the strength of the ordinary lime mortar depends. The clay also gives more plasticity, which is also an advantage where a less plastic hydrated lime is used.

The proportion of clay in the sand is limited to that, at which there is shrinkage and cracking and from observations made with Cow Bay sand which was free from clay and of a fineness, 10 per cent through 60-mesh, 75 per cent through 20-mesh, and the remaining 15 per cent through 10-mesh, this allowed the addition of five per cent of clay, before there were any indications of shrinkage in the mortar, and this proportion of clay in sand might be considered as a limit for the making of a good strength. The degree of fineness of the sand would have some influence in the amount of clay in the sand, as a coarser sand would carry more clay and show less shrinkage than a finer sand.

In estimating the clay in the sand this was done by careful floating of the clay from the sand, the sand then collected, dried and weighed, and some specimens of sand treated in this way were found to contain 24 per cent of clay.

The hydrated lime used in the various tests had the following composition:

Hydrated Lime—Calcium Oxide, 70.90 per cent; Water of Hydration, 22.79 per cent		93.69
Calcium Carbonate—Calcium Oxide, .84 per cent; Carbon Dioxide .66 per cent		1.50
Magnesium Oxide		3.21
Alumina		.62
Iron Oxide		.10
Silica		.36
Calcium Sulphate (SO_3. 0.164 per cent		.28
Moisture		.20

There is much attention now given to the physical change causing subdivision by colloidal action of different bodies, on other substances or in themselves when in contact with these. Such an effect on a mortar would be to make it of slower set by retention of water for a greater length of time, to allow a prolonged action of the carbon

dioxide of the air for better strength of the mortar. Another effect would be to a more homogeneous mixture, to bring the particles of the constituents more closely together for a firmer and more compact mass.

There is evidence that clay has some colloidal action in addition to any chemical change it undergoes in lime mortar, and this is perceptible, even when the clay is present in the small proportion of from one and one-half to two per cent of the dry material in the mortar, it is effective in improving lime mortar and lime plaster, without aging or curing.

Hydrated lime is very erratic in its action towards other substances which might be added to give it better quality for mortar and plaster work, and it is advisable to make practical tests of the mixtures for a lengthy exposure of from six months to a year and then note the condition. Many times we have found in our own experience, with some material the immediate results were very good, but with age these would show inferior results and condemn the material which at first appeared to be effective for the purpose it was being tested.

As laboratory measurements for strength of lime mortars and lime plasters have not been reliable, the comparative strength of the various mixtures was obtained by application of these on a large scale in a practical way and the effects noted by making comparison with a standard mortar made with the high calcium lime hydrate only, with the proportion of sand and other conditions to correspond to those of the test mixture.

The observation has been made that the purer the high calcium hydrated lime is, the higher is the strength of the mortar, this would indicate that the impurities have influence in reducing the strength, and we have not been able up to the present time to identify, which of the impurities might cause this condition of reduced strength.

While mortars made with high calcium hydrated lime do not equal in strength the mortars made with magnesian hydrated lime, the clay in limited proportion adds properties to high calcium hydrated lime which are similar to those of magnesian hydrated lime, as observed with mortars and plaster.

To show the chemical affinity that exists between lime and alumina, a small quantity of freshly precipitated alumina added to a solution of high calcium hydrated lime 15 grams, cane sugar 45 grams and water 80 cubic centimeters, the alumina is at first dissolved, but very soon there is a separation of calcium aluminate which gelatinizes the mixture to a firm jelly like mass with an exceedingly small amount of calcium aluminate remaining in permanent solution.

RUSSIAN LIME BUSINESS DEMORALIZED.

The conditions in the Russian lime industry are very unsatisfactory, according to Toninindustrie-Zeitung. Not one of the many large lime plants has been able to make the profits they realized before the war. But the war is not the only destroying influence on the Russian lime industry; the unhealthy and bad business policy causes as much damage to this industry as does the war.

The shares of the lime companies belong to that class in which the speculators of the Petrograd stock exchange like to gamble. During the past several of the lime factories enlarged their stock capital without having the necessary guarantee for larger sales. Thereupon a syndicate was established to regulate and control the lime prices, production and sales. However, some of the large plants declared after a brief period, that the syndicate was not working in their interest and resigned their membership. As a result, several of the smaller plants were obliged to shrink in their production and only a few among them paid dividends. The "Schwarzmeer" concern, which had left the syndicate, pays 8½% dividend on common stock, but this is the only plant which pays any interest of importance this year. The well-known plant, "Gluchoosersk," which paid a 25% dividend two years ago, does not pay any dividend this year.

Eastern Lime Market Steady.

A much healthier lime market has been noted of late due probably to the strong demand for chemical lime throughout several of the Eastern manufacturing districts, according to Henry M. Camp, of the Lime Service Bureau. This heavy chemical output has caused a natural stiffening of the market for all lime products, which has been noted particularly in the quotations on building lime in Northern New Jersey and other Northern sections. The increased demand for all building material is helping the output of building lime and the present agricultural demand is fully up to normal, and in some sections, above the normal output. The whole lime trade situation is greatly improved as to prices and output over that of a year ago and the cause for this is a heavier demand from the chemical and agricultural trade.

Reports from the various states are as follows: Virginia: Chemical demand continues heavy in the Virginia district; all plants reporting are operating full capacity. Agricultural demand is also good as shown by reports of several companies. Building lime might be considered dull in this district according to most advices, but prices for this product seem to have held well, due probably to the strong demand for chemical lime, which is holding the attention of producers at present. West Virginia: A good general demand prevails in the West Virginia district. Maryland: Maryland manufacturers report a fair to good demand with an increasing kiln operation at most plants. Agricultural trade is strong. Pennsylvania: Agricultural shipments are running heavy in the Pennsylvania district and a good general demand is also reported at most plants. One plant advises one weak spot, which is the lesser demand for pulverized quicklime. The strike in the plastering trade in New York may have some effect on certain grades of building lime, which up to this time, has not been reported as very serious.

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The Hauling Problem.

The busy season of the road contractors is reaching its zenith for the present year. Everybody with a road contract, and every crusher supplying road material is concentrating all efforts to make one supreme drive from Sept. 15 until snow flies. The problem of hauling road material is going to be the main feature to control the progress of the work. At the same time that the road contractors are going to need more teams than they have ever needed before, the farmers will be needing their horses to help harvest and market the greatest crop of grain and corn with which this country has ever been blessed. The time-honored and ever-present difficulty of securing sufficient teams to keep a stream of material constantly coming to the road job is going to be more acute than ever, with the probability that very many uncompleted contracts will have to be carried over the winter.

There has been a tremendous drain upon the normal supply of draft horses in all parts of this country by reason of the seductive prices that the belligerents in Europe have been persistently offering for any kind of an animal that looks like a horse. Never in the recollection of men living now has there been such a shortage of horses in the country to do the necessary work of the farmers. Never before has there been such a big crop that has required so many horses to handle and market it.

In this connection there is but one suggestion available at the present time and that is the prompt recognition of these nation-wide conditions and the consideration of providing power tractors and trailer equipment to haul the road material promptly, efficiently and economically as the substitute for the horse, which is absolutely an impossibility upon the basis of known calculations derived from past experience. Every road contractor has recognized this year that country teams have been scarcer than ever before. The scarcity heretofore encountered is as nothing compared to that which will be developed during the next two or three months, which constitute the rush period for nearly all of the road work that has been undertaken in the present year.

We have repeatedly in past issues of this journal discussed the economical values and given the comparisons of tractor equipment for moving the tonnage of road material, and the figures should be familiar to all of our readers. We will endeavor in the next number to take this matter up in some detail with a review for the guidance of our friends and companions who are doing valiently in the road improvements throughout the country.

Promote Next Year's Mileage Now.

Recognizing that this is the time when the crusher operator and the road contractor is having his busiest session with the contracts that he now has in hand, we cannot refrain from calling attention to the fact that right now is the time to lay plans for the campaign of 1916. The rural communities of this country during the coming winter will have more money and will consequently feel richer than they have ever felt before. Their crops have broken all records and the selling price is higher than the average selling price of very short crop years of past experience. The bigger tonnage at higher prices means rounder profits in all of the rural communities. Those road improvements which have long been considered out of reach on account of the expense of their construction can not only be considered at the present time, but the petitions will receive ready signers and the commissioners will be found in a receptive mood to hear the suggestions of every road booster that comes along with the proper qualifications and in the right way.

Our organizations should all get busy immediately with this suggestion and detail some able and interested workers who will work upon a definite propaganda to secure the maximum mileage of road appropriation in each of the various states in which they have the most influence. The tendency to road improvements at the present time can truthfully be said to be nearer to a spontaneous condition than any time that we can remember.

The successful and progressive farmer, as an average individual, has provided himself with an automobile of some kind, and he is now an auto driver. This being translated into the interest of the road contracting business means that a majority of the taxpaying farmers are favorably inclined to every road project that is offered. More than that, they are ready and willing to undertake the initiative and work for and pay for good roads over which they expect to drive their machines.

All the good work that has been done in the past is rolling up our argument like a great snowball, getting larger and larger with each successive turn, because every strip of good road that the newly inoculated auto driver passes over is preaching him a silent sermon to the effect that he needs more of the same kind.

Without a doubt a well organized and definitely directed campaign, started at the present time, will bring results that will be very gratifying and profitable, and not only help to run the plants at present in operation up to their capacity the whole of next season but will doubtless call for additions to the output in order to take care of the business which can be created by definite and intelligent promotion put forth at the present time.

Let us go to it with a hearty goodwill and double our own measure of prosperity for 1916 by the proper use of the gray matter that we keep stored under our felt hats, together with distinct knowledge of the conditions which surround the matter of road appropriations easy to promote right now.

OREGON FIRMS BUY CRUSHERS.

The Howard-Cooper Corporation of Portland, Ore., reports a good demand for road-making and crushing machinery. A Champion asphalt machine for laying asphalt macadam by the penetration method has been sold to Spokane county, Wash.; a Fort Wayne rock crusher to Stone & Hicks, Tillamook, Ore.; another Fort Wayne crusher to Marion county, Ore.; another to O. T. Larson, Roseburg, Ore.; an F/2 fine crusher to A. C. Mathews, Eugene, Ore.; a Champion asphalt machine to Benton county, Ore., and a Monarch pressure oil distributer to the city of Bend, Ore.

K. C. Crushing Interests Consolidate.

A consolidation of crusher interests in Kansas City, Mo., that is hailed with pleasure by the contractors was consummated recently, under the name of the Prince Johnson Limestone Co. The concern was incorporated for $75,000 by John Prince, Fred Johnson, a contractor, and George H. Cope, rock crusher owner and for some time manager of his own and the Corrigan-McGee crusher business.

The John Prince Crusher Co. had a good business, with two crushers, one on the Rock Island and the other on the Kansas City Southern railroad. The new company has bought the crushers of the Corrigan-McGee Co., of the Leeds Crushed Rock Co., and of the Rosedale Crushed Stone Co. The Corrigan-McGee Co. had crushers at Selsa, Mo., on the Chicago & Alton, and on the Kansas City Southern at Twenty-seventh and Manchester, Kansas City. Mr. Cope's crusher is at Independence, Mo., on the Missouri Pacific. S. P. Cramer was president of the Leeds company, whose crusher was on the Kansas City Southern. F. W. Kramer was president of the Rosedale company, the crusher being on the Frisco, in Rosedale, Kansas. The new company therefore has crushers on all the important roads, conveniently situated, and can give the highest quality of service as well as, and importantly because, having advantageous situation for freight rates. There is one important crusher company in Kansas City outside this concern, Mr. W. M. Spenser's plant.

In the new company, Mr. Prince will pay attention to both plants and sales, Mr. Johnson will pay particular attention to operation, and Mr. Cope to sales.

NEW INCORPORATIONS.

The Hinton-Greenbrier Shale Manufacturing Co., Hinton, W. Va.; capital, $25,000; incorporators, Charles E. Fox, Hinton, W. Va.; D. E. Tahey, Pence Springs, W. Va., and others; to mine shale products.

The Lightman Stone Co., Nashville, Tenn.; capital stock, $40,000; incorporators, M. A. Lightman, Louis Shapinsky, Fannie Lightman and others; to engage in quarrying limestone and other stone, and to buy, sell and manufacture screenings.

F. W. Kasselbaum & Son, Aurora, Ind.; capital, $7,500; to manufacture and sell stone, cement, etc.

MORE CRUSHED STONE LITERATURE.

The Indiana Crushed Stone Association, with offices in the Hume-Mansur building, Indianapolis, Ind., have just published another attractive pamphlet calling attention to the advantages of macadam roads. The title of the folder is "The Road to Prosperity—Are You On It?" The leading thought conveyed in the folder is "The Macadam Way Means More Miles of Good Roads." Four illustrations are shown, together with the words, "Build Macadam Roads Right and You Will Get Results Equal to These."

OBITUARY.

John W. Osborne, aged 62, of Slippery Rock, Pa., dropped dead near his home Aug. 21. For many years he had been manager of the Wick Station plant of the Climax Limestone Co.

CRUSHER DESIGNED FOR AGRICULTURAL LIMESTONE.

Just at the time when the possibilities of pulverized limestone as an aid to agriculture has opened a new field for the limestone interests, the K-B Pulverizer Co., Inc., has placed on the market a machine for producing this stone, which features a number of improvements.

The watchword of the new pulverizer is "Built for service and durability" and its builders appear to have succeeded in at last manufacturing a machine that will withstand the terrible wear exacted by the work of crushing stone. The K-B pulverizer is not only built entirely of steel, but it is also lined with plates of manganese hardened cast steel, which can be renewed when worn, thus prolonging indefinitely the life of the machine. In design it is both massive and stocky, presenting a very sturdy appearance, giving one a feeling of confidence in its strength which is further secured by the careful attention and expert knowledge displayed by its every detail.

The pulverizer is of the bar-hammer type, with hammers made of manganese steel. By an extremely ingenious device they can be adjusted to take up the wear upon them, so that they will give several times the service of the non-adjustable kind, as well as insuring uniformity of product and regulating its size. So simple is the method of adjustment that in no wise is the strength and solidity of the machine impaired.

The unusually large capacity of the pulverizer is due in a great measure to the careful attention paid by its makers to the design of the screens, which they have succeeded in perfecting through an expert and specialized knowledge gained during years of experimenting as well as practical experience with crushing machinery. The manufacturers offer several types of screens, each specially constructed for a specific purpose. One man, without assistance, can in practically no time change the screens, which slide into the machine in a most novel and clever manner.

This latter device is another example of the economies effected by the pulverizer, for it reduces to a minimum the time and labor lost whenever the machine through careless feeding should become clogged. Another economical factor is the low power required to run the machine, while the capacity is increased to a maximum.

The pulverizer is built in two sizes, one with a capacity of three to five tons and the other with a capacity of eight to 12 tons per hour on limestone. Besides the reduction of limestone for agricultural and cement-making purposes, the machine is also used for pulverizing shale, oyster shells, clay, marl, brick-bats, coal, etc. Its success has led the manufacturers to plan a larger machine for use in the coke making trade and large limestone plants; it will be ready for sale in a very short time.

Although it is comparatively recently that the K-B pulverizer has been offered for sale, it has already created quite a stir and satisfied purchasers testify to its merits. A number of crusher manufacturers are adding it to their own regular lines, while several dealers throughout the South, East and Middle West are featuring it. Before long the K-B pulverizer will cross the Rockies and start on its conquest of the Far West.

LAWRENCE QUARRY FLOODED.

On account of heavy rains quarry No. 1, belonging to the Lawrence Portland Cement Co. at Northampton, Pa., was recently flooded. About two months ago the cement company, in order to widen the quarry, changed the course of the Hokendauqua creek, which runs close by the quarry and crushing plant. At a distance of 1,500 feet above the quarry it built a dike 20 feet thick to be used in throwing the water over to the new course.

Due to heavy rains, several men were stationed at the dike with instructions to tell the quarrymen when there were any indications of a break. Several breaks opened up but the workmen were able to hold the water back by throwing bags filled with dirt into the openings. Finally a bad opening was noticed in the middle of the dike and warning was sent to the quarrymen below. In a few minutes the water came through with a roar and completely submerged the quarry, steam shovel and everything in sight. It took an enormous volume of water to fill the quarry, for it was 400 feet in diameter and about 200 feet in depth.

As the result of the flooding of the quarry it is feared that the supply of stone on hand will give out and that the mills will have to close down for an indefinite period. However, everything that is possible will be done in order to pump the water from the quarry and resume operations.

Quarry News Notes in Brief.

A large barge laden with 500 tons of rock belonging to the E. B. & A. L. Stone Co., of Oakland, Cal., en route to Stockton, Cal., sank in Petaluma river, a tributary to San Francisco Bay some weeks ago.

The Kings County, Cal., Highway Commission has secured an option on a rock quarry with the idea of erecting a crusher and providing its own crushed rock.

The Pittsburgh Limestone Co. has bought from Joseph A. Donnolly 554 acres of land in Washington Township, Butler County, Pa., and expects to start mining and manufacturing.

Former Postmaster John B. Sweeney, and Herman C. Koehler, minority stockholders, recently filed suit for an injunction to restrain Dr. J. M. McPherson Scott, mayor of Hagerstown, Md., his brother, former State Senator Norman B. Scott, Jr., and his son, Norman B. Scott, from leasing the Potomac Valley Stone and Lime Co. plant at Pinesburg, to C. W. Johnson, New Castle, Pa., for a period of 25 years.

The Breckenridge Stone Co., Breckenridge, Mo., disposed of its crusher and all equipments at the quarry for $5,000 July 10 to A. G. Taubert, of Stoutsville, Mo., who will take possession at once. Arrangements have been made for satisfactory lease terms on the Bush quarry and also the Cox quarry and the machinery will again be put in operation as soon as the necessary repairs can be made, which will require several weeks. If expectations are fulfilled, probably 100 workmen will eventually be employed.

More than 1,100 cars of limestone have passed through East Hollidaysburg, Pa., classification yards from the quarries in the Williamsburg, Pa., district in one week recently, all bound for the steel industries in the Pittsburgh district. The Williamsburg quarries are running above normal capacity, some of them working 15 hours per day.

Cincinnati Prospects Brighten.

Cincinnati, Ohio, Sept. 4.—While there has been little increase in the amount of actual business handled by local material concerns lately, there is none the less much optimism in evidence among the trade, based on very sound grounds. Among these are the improving industrial conditions, which make it probable that the extreme conservatism brought on by the war will give way to general activity; the excellent prospects in the residence building field, and, of course, the preparations for work on several good-sized public jobs. The past summer, of course, will be remembered as a very slow one, which was felt by dealers in materials; but it seems pretty certain that the work which was not done then is going to be taken care of this fall or next spring, and so the business will be available, just the same. It is merely postponed.

Those who have been pessimistic about the building situation in Cincinnati have had a hard time in reconciling their gloomy forebodings with the figures just made public by Commissioner Rendigs, covering the month of August and the first eight months of the year. These figures hardly require comment, inasmuch as they show that August, 1915, ran ahead of the corresponding months of 1913 and 1914 by a considerable margin, just as did the first eight months of the year over those of the two years mentioned. Much of the work recorded was small stuff, and, on the other hand, several big jobs, which have been heretofore referred to in these columns, such as the University buildings, swelled the bulk of business considerably; but it is impossible to escape from the conclusion that things might have been a good deal worse, and that, on the other hand, they are also going to be a good deal better. The figures follow:

Year.	No. Permits.	Cost of Improvement.
1913 (August)	1,053	$ 504,130
1914	1,227	1,128,060
1915	1,384	3,048,475
1913 (Eight months)	8,652	6,048,066
1914	9,444	7,207,348
1915	10,996	9,991,239

Increased Activity in Western Canada.

Winnipeg, Man., Sept. 4.—That trade in Canada has passed the period of greatest depression and already exhibits signs of a sound revival in many lines appears to be the opinion of the majority of representative business men throughout the Dominion who have contributed their views to a comprehensive survey of conditions which has just been completed by the Canadian Northern Railway, and issued from Toronto. Less than 10 per cent of those responding confess to a gloomy outlook, more than 90 per cent, numbering more than 2,000, report themselves as optimistic as far as the immediate future is concerned. Practically all are agreed that trade conditions will rapidly return to normal after the restoration of peace.

A new building will be erected at Red Deerm, Alta., by Baird & Mackenzie. It will be constructed of brick and will cost in the neighborhood of $20,000.

Towering eight stories high, the big reinforced concrete warehouse of the Robert Simpson Co., Ltd., of Toronto, will cover an area of 250 by 100 feet on Broad street, Regina, Sask., providing a floor capacity of 200,000 feet. The cost of the new building will be almost $500,000 complete. The structure is to be the last word in fireproof construction.

Arrangements have been made for the early completion of the Knox Presbyterian Church, work on which was suspended last Fall owing to financial difficulties arising. This building is costing $300,000 and will be one of the finest church buildings in Western Canada when completed.

The Western Canada Flour Mills Co., Ltd., is erecting 10 new elevators in the vicinity of Calgary, Alta., in connection with present mills there. The flour mills will have their capacity extended from 300 barrels to 1,500 barrels per day.

The Koehring Machine Co., concrete machinery manufacturing concern of Milwaukee, Wis., was awarded a gold medal on its concrete mixer display at the Panama-Pacific exposition. The Milwaukee concern was represented by an unusually complete and attractive exhibit at the exposition. In celebration of the victory, more than 1,000 employes of the Koehring concern and their families were entertained by the company at an outing at Waukesha beach on Aug. 28. The affair was under the personal direction of Phillip and William Koehring and Richard Kiel.

GYPSUM PRODUCTS

The Gypsum Industry in 1914

BY G. F. LOUGHLIN.

The development of the gypsum industry during the 35 years, 1880 to 1914, inclusive, so far as represented by statistics of the United States Geological Survey, is shown in the following tables and in the accompanying diagram:

Crude gypsum mined in the United States, 1880–1914.

	Short tons.		Short tons.		Short tons.
1880	90,000	1892	256,259	1904	940,917
1881	85,000	1893	233,615	1905	1,043,202
1882	100,000	1894	239,312	1906	1,540,585
1883	90,000	1895	265,503	1907	1,751,748
1884	90,000	1896	224,254	1908	1,721,829
1885	90,405	1897	288,982	1909	2,252,785
1886	95,250	1898	291,638	1910	2,379,057
1887	95,000	1899	486,235	1911	2,323,970
1888	110,000	1900	504,462	1912	2,500,757
1889	267,769	1901	633,791	1913	2,599,508
1890	182,995	1902	816,478	1914	2,476,465
1891	208,126	1903	1,041,704		

Total value of crude and calcined gypsum, 1889–1914.

1889	$764,118	1898	$755,280	1907	$4,942,264
1890	574,523	1899	1,287,080	1908	4,075,824
1891	628,051	1900	1,427,203	1909	5,906,738
1892	695,492	1901	1,506,841	1910	6,523,029
1893	696,615	1902	2,089,341	1911	6,462,035
1894	761,719	1903	3,792,943	1912	6,563,908
1895	797,447	1904	2,784,325	1913	6,774,822
1896	573,344	1905	3,029,227	1914	6,895,989
1897	755,864	1906	3,837,975		

Historical Review.

From 1880 to 1887, inclusive, the production remained nearly stationary and averaged a little less than 92,000 short tons annually. Reliable data on the value of production during these years are not available. From 1888 to 1898 the production, as a whole, increased slowly, both in quantity and in value, although certain years, especially 1890 and 1896, were marked by decreases. The panic of 1893 evidently had no material effect upon the industry as a whole. From 1899 to 1910 there was a marked general increase, both in the quantity of crude gypsum and in the value of the marketed product, with occasional years of increase and decrease, the most pronounced of which were 1903 and 1908, the increase in 1903 being due to the use of large quantities of "staff" in the construction of exposition buildings in St. Louis, and the decrease in 1908 being a result of the financial depression which began late in 1907 and which affected the gypsum industry along with most other industries. The quantity produced in 1908, however, decreased only slightly, and the marked drop in value was largely due to keen competition. From 1911 to 1913 quantity and value increased, but at a less pronounced rate than during the period from 1899 to 1910.

Comparison of the curves in the diagram indicating quantity and value shows that, on the whole, a uniform ratio was maintained until 1898, with a temporary lowering of prices in 1896. After 1898 the value greatly increased in spite of the fact that the price per ton for different grades decreased in certain years. This proportionate increase has been due to a continual growth of the production of calcined plaster and a decrease in the production of land plaster. The increase in calcined plaster was due to the growing demand for wall plaster and especially to the demand in certain years for "staff," used in the construction of temporary buildings. The great increases for 1902 and 1903 were largely due to the production of staff for buildings at the Louisiana Purchase Exposition at St. Louis, and the decrease for 1904 represents a return to normal production. The percentage of production of land plaster has been decreasing since 1880, when it comprised about 50 per cent of the total; in 1904, 10 years ago, it amounted to less than 10 per cent, and in 1913, the latest normal year, to less than 2.5 per cent.

The bulk of crude gypsum in recent years has been used in the manufacture of Portland cement. In 1913 about 88 per cent of the total crude gypsum, representing 86 per cent of the value, was used for this purpose.

The decrease in 1911 accompanied a readjustment of the industry, during which several old mills were replaced by newer ones and a number of commercial centers were established remote from deposits, at which ingredients were assembled for the manufacture of finished products.

The prices of crude gypsum for land plaster and other uses and of calcined plaster have fluctuated considerably, but on the whole have not increased. This is especially true of calcined plaster which was lower in 1912 and 1913 than in any of the 10 preceding years, except 1908, when, as already explained, prices were abnormally low. The price in 1914, however, made a marked advance and was the highest in seven years.

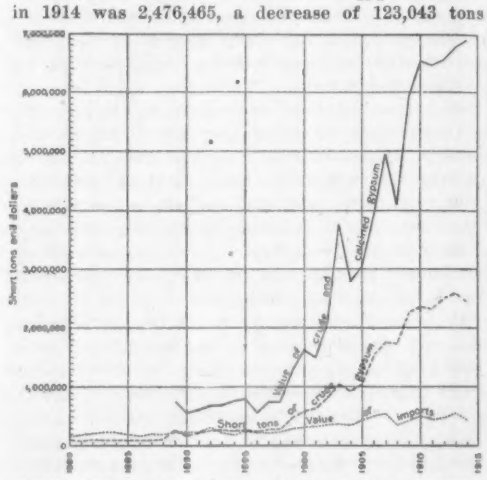
Average prices per short ton of crude and calcined gypsum, 1902–1914.

Year.	Crude (excluding land plaster).	Land plaster.	Calcined.	Year.	Crude (excluding land plaster).	Land plaster.	Calcined.
1902	$1.15	$1.75	$3.50	1909	$1.54	$2.09	$3.54
1903	1.19	2.08	4.63	1910	1.53	2.04	3.70
1904	1.09	2.02	2.65	1911	1.47	1.85	3.67
1905	1.08	1.95	2.97	1912	1.53	2.02	3.43
1906	2.45	2.09	3.59	1913	1.47	1.73	3.43
1907	1.82	2.47	3.94	1914	1.41	1.85	3.77
1908	1.73	2.43	3.34				

Production in 1914.

The production of gypsum in 1914, as reported in the July 22nd issue of ROCK PRODUCTS AND BUILDING MATERIALS, was marked by a decrease in quantity but an increase in value, the latter due to a strong advance in the price of calcined gypsum which more than offset a decline in price of crude gypsum, so that the total value broke all previous records. Considerable quantities of gypsum plaster, or "staff," were used in the Panama-Pacific Exposition buildings at San Francisco and in the Panama-California Exposition buildings at San Diego, but were insufficient to offset the general decrease in quantity. The gypsum for the Panama-Pacific buildings was quarried in southern Nevada, and that for the Panama-California buildings was quarried in Utah.

The number of short tons of raw gypsum mined in 1914 was 2,476,465, a decrease of 123,043 tons



PRODUCTION OF CRUDE GYPSUM AND VALUE OF OUTPUT AND OF IMPORTS OF CRUDE AND CALCINE GYPSUM, 1880-1914.

from the 2,599,508 tons mined in 1913. The gypsum sold without calcining and used principally as an ingredient in Portland cement, in paint, and as land plaster, amounting to 443,687 short tons and valued at $646,799, showed a decrease in quantity of 19,449 tons and in value of $50,267, as compared with 463,136 short tons, valued at $697,066, in 1913. The material calcined for plaster decreased in quantity 117,783 short tons, but increased in value $171,434. The total value of gypsum and gypsum products produced in 1914 was $6,895,989, as compared with $6,774,822 in 1913, an increase of $121,167.

The accompanying table showing the marketed production of gypsum, by uses, in the United States from 1910 to 1914 should be of particular

(Continued on page 35.)

Marketed production of gypsum in the United States, 1910–1914, by uses, in short tons.

Year.	Sold crude. For Portland cement. Quantity.	Value.	Average price per ton.	As land plaster. Quantity.	Value.	Average price per ton.	For paint material. Quantity.	Value.	Average price per ton.	For other purposes. Quantity.	Value.	Average price per ton.	Total. Quantity.	Value.	Average price per ton.
1910	334,815	$522,093	$1.56	53,815	$110,325	$2.05	1,397	$2,396	$1.84	31,902	$34,093	$1.07	421,829	$669,497	$1.59
1911	327,953	484,373	1.48	52,880	97,573	1.85	(a)	(a)	.....	[a]6,647	7,533	1.13	387,480	589,479	1.52
1912	367,952	509,400	1.33	53,065	107,058	2.02	(a)	(a)	.....	[a]5,591	7,064	1.26	441,068	623,522	1.41
1913	408,221	600,913	1.47	54,815	95,923	1.75	(a)	(a)	.....	[a]100	200	2.00	463,136	697,066	1.51
1914	[b]390,742	549,053	1.41	52,945	97,716	1.85	(b)	(b)	.....	.....	.....	.....	443,687	646,799	1.46

Year.	Sold calcined. As plaster of Paris, wall plaster, Keenes cement, etc. Quantity.	Value.	Average price per ton.	For dental plaster. Quantity.	Value.	Average price per ton.	To glass factories. Quantity.	Value.	Average price per ton.	For Portland cement and other purposes. Quantity.	Value.	Average price per ton.	Total. Quantity.	Value.	Average price per ton.
1910	[c]1,483,046	$5,599,353	$3.78	[d]115	$805	$7.00	15,943	$29,185	$1.85	84,565	$224,189	$2.65	1,583,669	$5,853,532	$3.70
1911	1,523,263	5,678,453	3.73	413	2,612	6.32	33,472	80,220	2.40	41,270	111,271	2.70	1,598,418	5,872,556	3.67
1912	1,678,417	5,805,999	3.46	[d]3,190	15,564	4.88	24,179	52,741	2.18	25,908	66,082	2.55	1,731,674	5,940,386	3.43
1913	1,680,157	5,856,786	3.49	851	4,166	4.84	10,942	21,797	1.99	81,859	193,006	2.36	1,773,849	6,077,756	3.43
1914	1,555,937	6,038,777	3.86	641	3,374	5.26	(e)	(e)	.....	[d]83,488	207,039	2.31	1,656,066	6,249,190	3.77

[a] Paint material included under "For other purposes."
[b] Small quantity of paint material included with gypsum sold for Portland cement.
[c] Some dental plaster and other gypsum products included with plaster.
[d] Includes some casting plaster.
[e] Calcined gypsum sold to glass factories included under "For Portland cement and other purposes."

CLAY PRODUCTS

News of the Clay Field.

The Shawmut Clay Manufacturing Co., operating the large sewer pipe and conduit manufacturing plant at Drummond and of which S. E. Tuttle is general manager, has received another large order from the United States Government for conduit to be used along the Panama canal.

The Leuten Brick Co., Philadelphia, Pa., has purchased a plot of ground at the southeast corner of Passayunk avenue and 25th street, which adjoins the five and one-half acre tract owned by the company.

Plans are under way at Marshfield, Wis., for the launching of a large brick and tile manufacturing enterprise. Steps have been taken for the erection of a large plant just north of Marshfield, which will be equipped with modern brick and tile making machinery. Back of the project are Louis Hartl, president of the Marshfield Brewing Co., and Ernest Krause, a practical brick manufacturer, who in his former plant made some of the first brick turned out in Marshfield. The men interested in the enterprise have purchased 20 acres on the Giles farm, adjoining the Chicago & Northwestern railroad. Samples of brick and tile made from the clay on the site have been examined by the engineering department of the University of Wisconsin at Madison and have been pronounced to be of exceptionally fine quality. The brick are extremely strong and smooth and burn a rich dark red. Mr. Hartl says that equipment for the new plant has been ordered and that the work of erecting the buildings and kilns will start within the near future.

The brickmaking plant at the Middle Farms clay bed, formerly owned by the Westfield Brick Co., has been bought and will be operated by the Westfield Clay Products Co., Westfield, Mass., a new concern just organized. There is already an excellent brick-making equipment at the yards, but this will be enlarged along with the development of the business. Westfield men are back of the corporation, which is capitalized for $250,000. The officers of the company are: President, Joseph B. Ely; vice-president, Edgar L. Gillett; treasurer, Darwin L. Gillett. George A. Wakely and Henry W. Ely are additional directors. The new company bought the plant through Harry C. Lane, receiver of the old company.

The Lehigh Valley Trust Co., as trustee for the bondholders, recently filed a suit in the prothonotary's office, at Allentown, Pa., to recover the interest on $95,000 outstanding bonds issued by the Allentown Brick Co. In view of the fact that the brick company has failed to meet the interest on the outstanding mortgage, the trust company desires to foreclose on all properties of the company, in order to settle the claims of the bondholders.

E. W. Giger, of Leavenworth, Kas., received the contract for 3,386 square yards of repressed brick block paving at Leavenworth, Kas.

J. A. Beebe, of Omaha, Neb., received the contract for 2,254 square yards of vertical fiber brick paving at Kearney, Neb.

Levi Kramer has filed a petition in bankruptcy as president of the Middle-west Brick and Tile Co. The plant is at Waverly, Mo., and 125,000 brick are now in the kiln, valued at $2 a thousand. The liabilities are given at $67,000. Holmes Hall, of Sedalia, Mo., was appointed receiver and John Ready at Sedalia is the attorney for the company.

The Wisconsin Tile & Brick Co.'s plant at Granville, just north of Milwaukee, Wis., was totally destroyed by fire recently, entailing a loss estimated at $6,000.

The C. Peterson Construction Co., of Kenosha, Wis., has received several substantial contracts for laying vitrified brick paving at various points about Wisconsin, among them one at Marshfield at the contract price of $66,398.45, and one at Oconto at the price of $26,832.94.

The common council at Merrill, Wis., has voted to pave portions of Main and West Main streets with vitrified brick. This is the first time that steps have been taken at Merrill to lay a permanent pavement, as only tar macadam and crushed rock has been used up to this time.

The Burnt Clay Building Material Co. has opened offices at Green Bay, Wis., and will represent the Belden Brick Co., of Canton, Ohio. J. A. Gagnon, formerly representative of the Belden concern at Marinette, Wis., and D. S. Colburn, formerly an architect at Menominee, Mich., are members of the firm.

The Jefferson Brick & Tile Mfg. Co., of Jefferson, Wis., has installed considerable new brick-making equipment in its plant.

The Manitowoc Clay Co., recently organized at Manitowoc, Wis., to succeed the Manitowoc Clay Products Co., has begun the work of erecting dry kilns and a large addition to its plant. H. H. Titsworth, of Chicago, will superintend the erection of the new buildings and the installation of the new equipment. The company will take up the manufacture of tile as well as increasing its output of brick.

M. J. Lee recently sold the M. J. Lee Brick and Tile Works at Paola, Kas., to William Schwartz, of Louisburg, and Thomas Schwartz, of Paola. Mr. Lee is in his seventy-eighth year and is retiring from the business. The new owners are making arrangements to install more machinery, build the plant up and operate it on a larger scale than has before been attempted. They have retained the services of John W. Jenkins as manager.

Prof. J. F. Tucker, of the University of Oklahoma, recently lectured before the Engineers' Club of Kansas City on the subject, "Vitrified Brick." He has made a special study of brick and was recently employed by the American Association of Brick Manufacturers.

E. G. Ostling and others of Tuscaloosa, Ala., are organizing a brick, sewer pipe and drain tile plant.

BRICK ROADS GROW IN FAVOR.

A rapid increase in the mileage of vitrified brick roads in this country is predicted in a new bulletin (No. 246) of the United States Department of Agriculture. The following formula is a rough guide for the probable expense of a brick road with a six-inch concrete foundation and suitable grades: Cost per square yard, 1.90 L+0.213 C+0.138 S+0.157 A+0.040 B.

In this formula C equals cost of cement per barrel, S equals cost of sand per cubic yard, A equals cost of coarse aggregate per cubic yard, B equal cost of paving bricks per 1,000, and L equals cost of labor per hour. Thus, if labor costs 25 cents an hour, the labor cost per square yard of pavement will be 1.93 times 25 cents, or 48.25 cents. The cost of the cement per square yard will be 0.213 times the price of a barrel, and so on with the other items.

NEW CLAY PRODUCTS VENTURES.

The Berlin Smokeless Coal & Clay Mining Co., Berlin, Somerset county, Pa.; capital, $25,000; mine clay and coal; incorporators, A. J. Hillegass, Berlin; L. C. Colburn, Somerset; W. H. Miller, D. J. and J. A. Hillegass, Fairhope.

The Wilson Brick & Tile Co., Pittsburgh, Pa.; incorporators, Austin G. Nicola, T. E. Wilson and B. L. Sichelstiel.

C. L. Leiby, who recently withdrew from the firm of Leiby & Flurie, brick manufacturers, New Cumberland, Pa., and G. C. Landis, Brownsville, Pa., have formed a partnership to erect a brick plant of 50,000 bricks per day capacity.

The plant of the Melvin Brick & Tile Co., Washington Courthouse, Ohio, which was destroyed by fire, will be rebuilt.

The Paducah Clay Co., Paducah, Ky., capital, $4,000; incorporators, N. B. Lindsey, Luther Carson, L. T. Barradell and R. E. Winston.

It is reported that Dennis Leahy and others of Pence Springs, W. Va., contemplate the establishment of a brick plant with a daily capacity of 60,000 brick.

NEW YORK CLAY NEWS.

New York, Sept. 4.—While there is no actual change in quotations made by various clay products companies doing business here, save Hudson river common brick, there is much less shading being done. Common brick from the Hudson district advanced 25 cents in price during the month and is now being quoted at $5.50 and $6, as against $5.25 and $5.75 at this time in August.

The National Fireproofing Co. is quoting on the same list issued earlier in the year, but it is reporting a much better demand for city business. Heretofore its best demand was from the suburbs. The architectural terra cotta companies are reported to be doing a little more figuring, but small jobs predominate.

Advices received from the Hudson district are to the effect that manufacturers have decided not to shut down their plants this year in unison. The slight improvement in business that developed just prior to the first of the month has encouraged the most important owners to keep their plants going during the first part of September anyway. It is probable that most plants will continue to operate until the first of October.

Raritan river common brick in this market is bringing about the same price as Hudson brick. The plants in the Raritan and Matawan, N. J., districts are working at reduced capacity, but they are well equipped for winter requirements. They have approximately 250,000,000 brick in reserve, according to estimates made this week.

PITTSBURGH BRICK BUSINESS BEHIND 1914.

Pittsburgh, Pa., Sept. 4.—The brick business is dragging along without any special reason to believe that it will get much better this fall. Building brick are steadily behind last year's sales. House building has not been plenty enough to bring up this business. In paving brick there has been more business lately and plants have been fairly active. The prices, however, have not profited and all along the line there is a complaint of fierce competition.

SAND and GRAVEL

Efficiency in Sand and Gravel Washing

The sand and gravel washing plant of the Akron Gravel & Sand Co., Akron, O., has recently been completed and placed in operation. The size and capacity of this plant exceeds any other land-operated plant (Fig. 1). The daily capacity is 100 cars of washed material.

The bank material is excavated by steam shovels and brought to the plant by two locomotives, each handling two 30-yard dump cars. The cars discharge into a large concrete hopper, having a capacity of about seven carloads, which is below the track. In order to load the hopper evenly, one gable bottom and one center dump car are used with each locomotive. From the hopper the material is carried to large stone screen, 60 inches in diameter, by means of an apron feeder. One of the novel features in the use of the feeder is that, being operated by a variable speed motor, the capacity of the entire plant can be governed by regulating the speed of the feeder.

The stone screen takes out the oversize at this point and the aggregate is delivered to an inclined field conveyor leading to the top of plant. The oversize is spouted from the stone screen to a large steel continuous type elevator. The severe service required of this elevator requires special construction and for this reason care has been exercised to guard against breakage and undue wear. The chains are built of four and one-half-inch by five-eighths-inch bars with pins and bushings of chrome nickel steel, and the sprocket wheels on both head and foot shafts are made extra heavy, and with renewable manganese teeth. The buckets are also reinforced by heavy steel lips. An idea of the size of this machine can be obtained from the fact that the buckets are 36 inches wide.

The material from the elevator is discharged onto a bar grizzly which divides the oversize into two sizes, the large stone which is spouted to a No. six Gates gyratory crusher and the remainder goes to a 48-inch Symons disc crusher. The product from each crusher is then carried back to the stone screen for rescreening by means of 30-inch belt conveyors. With this arrangement all of the material which comes from the pit is used.

The main belt is 36 inches wide and has a Goodrich 6-ply rubber conveyor belt with one-eighth-inch extra rubber cover on the carrying side. The

FIG. 2. MAIN BELT CONVEYOR.

troughing idlers are of the Link Belt Co. type, with five pulleys each. The main conveyor is 270 feet

FIG. 3. WASHING SCREENS.

long and is enclosed to protect from wind and storm. This is shown by Fig. 2.

The gravel washing equipment consists of 16 Dull type inclined washing screens, mounted four in a row (Fig. 3). Provision has been made in the construction of the plant for future increase of capacity by arranging the timber work for two more rows of screens. A particularly interesting feature of this plant is the operation of eight Dull type conical sand separators (Fig. 4). These machines work automatically and require practically no attention from the workmen, which means a saving in the cost of operation.

The screens and tanks make five grades of material which are delivered into seven large bins. The bins are 144 feet long, 26 feet wide and 90 feet high at the center. This gives excellent storage capacity and for this reason facilitates the loading of cars. Segmental type bin gates are used for the gravel loading and special slide gates for the sand bins.

On account of the large capacity of the bins, special construction has been used to insure sufficient strength. This consists of cribbing the plank and stiffening the outer walls by means of steel rails placed vertically and held in place with tie rods running through the bins. While this construction is unusual it is very satisfactory. A tunnel runs through the center of the plant in order to facilitate getting from one side to the other.

The washing water is pumped to the plant by an eight-inch American, two-stage Centrifugal pump direct connected, to a 100-horsepower motor. The water distribution is novel and very elaborate and the arrangement gives an exceptionally clean product. The material is given a preliminary washing in a stone box and the water jets do the distributing for the four different sets of washing screens. By-passes for taking out the great volume of sand are also provided as well as a rinsing system while loading and when delivering from screens.

The plant is electrically driven throughout by individual motors and each half of the plant can be run independently. This means a saving in power consumption when the plant is running only half capacity. Westinghouse motors are used and power is furnished by the Northern Ohio Light & Traction Co.

The large capacity of the plant lessens the cost of production. No expense was spared, however, in the erection or construction of the machinery to insure liability of break-down. The plant was designed and engineered by the Raymond W. Dull Co., Chicago, Ill.

FIG. 1. GENERAL VIEW OF AKRON GRAVEL & SAND CO.'S PLANT.

The Gypsum Industry in 1914.

(Continued from page 32.)

interest, as it shows the trend of the trade. An increasing quantity of crude gypsum has been sold for Portland cement manufacture. Its average price per ton has fluctuated, falling off 15 cents in 1912, increasing 14 cents in 1913, and again decreasing 6 cents in 1914. The decrease in 1914 corresponds to a marked decrease in the production of Portland cement.

The quantity sold crude for land plaster has remained nearly the same for five years. The average price per ton, which dropped 27 cents in 1913, or from $2.02 to $1.75, made partial recovery of 10 cents in 1914. As 88 per cent of gypsum sold crude in 1914 was used for Portland cement, the average price per ton of all crude gypsum ($1.46) is close to that of the crude gypsum used for Portland cement ($1.41), and the slight decrease in the average price of the latter accounts for the rather marked decrease in total value of gypsum sold crude.

The total quantity of calcined gypsum sold in 1914 was 117,783 tons less than that sold in 1913, but the total value was $171,434 greater. The average price per ton, which was $3.43 in both 1912 and 1913, increased to $3.77 in 1914, and accounts for the gain in value despite the loss in tonnage. Nearly 95 per cent of the calcined gypsum sold in the United States, or 1,565,937 tons, is used for wall plaster, Keene's cement, plaster of Paris, etc. About 1,250,000 tons of this quantity represents mixed wall plaster.

Imports.

The value of imports, as shown in the diagram and in the following table, has fluctuated, but on the whole has gradually risen. The most pronounced rise was from 1905 to 1907, since which year fluctuations have been more marked. The maximum value ($556,922) was for 1913, and was greater by $21,264 than the value for 1907. The value of imports from 1889 to 1898 averaged about one-third of the value of domestic production, but since 1899 the proportionate value of imports has become very small, and in 1913, the last normal year, amounted to less than one-twelfth of the domestic production. The total value of imports in 1914 was $444,841, a little more than one-sixteenth the value of the domestic production.

Total value of gypsum, crude and calcined, imported for consumption, 1880–1914.

1880 [1]	$150,400	1892	$308,011	1904	$356,401
1881 [1]	171,724	1893	211,224	1905	446,152
1882 [1]	200,922	1894	126,080	1906	505,729
1883 [1]	218,929	1895	247,583	1907	535,658
1884 [1]	210,904	1896	227,248	1908	354,403
1885 [1]	173,752	1897	212,429	1909	425,137
1886 [1]	153,335	1898	240,844	1910	502,111
1887 [1]	179,890	1899	237,926	1911	450,806
1888	120,787	1900	315,530	1912	488,481
1889	220,140	1901	336,670	1913	556,922
1890	229,859	1902	360,700	1914	444,841
1891	226,319	1903	378,597		

[1] For year ended June 30.

Gypsum imported into the United States comes almost wholly from Nova Scotia and New Brunswick and enters the ports of the New England and North Atlantic states, over one-half of it entering the port of New York.

The quality and value of imports in 1914 suffered a great decrease and were both less than for any years since 1909. There was a decrease of 78,169 tons of unground gypsum as compared with an increase of 34,686 tons in 1913 and of 22,823 tons in 1912, the total imports of unground gypsum in 1914 being 369,214 short tons, valued at $392,118. The figures show an average price per ton of unground gypsum of $1,062, or about four-tenths of a cent a ton higher than in 1913.

The quality of ground or calcined gypsum imported continues to be very small, and it also decreased in 1914.

Production in Other Countries.

The following table gives the production of gypsum in the principal producing countries from 1911 to 1913, inclusive, so far as the figures are available:

FIG. 4. VIEW SHOWING EIGHT DULL CONICAL SAND SEPARATORS.

Production of gypsum in principal producing countries, 1911–1913, in short tons.

Country.	1911		1912		1913	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Algeria	57,320	$119,264	39,695	$125,004	35,566	(a)
Australia	15,150	27,504	15,787	40,146	(a)	(a)
Canada	548,360	666,396	675,646	1,324,629	696,370	84,497,730
Cyprus	9[illegible],000	32,347	9[illegible],571	12,613	(a)	(a)
France	1,574,304	3,139,594	1,679,366	3,330,311	1,902,460	(a)
German Empire (Bavaria)	68,000	36,000	69,057	36,602	(a)	(a)
Greece	1,000	5,072	997	536	2,475	(a)
India	10,000	11,227	10,557	(a)	(a)	(a)
United Kingdom	389,096	867,191	329,528	536,191	320,570	949,124
United States	2,323,970	4,462,025	2,409,727	6,560,925	2,589,939	6,771,152

[a] Data not yet available. [b] Exports. [c] Total value not stated.

Trade and Manufacturing Conditions.

About two-thirds of the active plants reported on business conditions. Of these about half reported business conditions as practically the same in 1914 as in 1913, and half found trade poorer. Four producers considered it better. The average price of raw gypsum throughout the country decreased five cents a ton in 1914 from that of 1913, while the average price of calcined material advanced 34 cents. Four new mills were in operation in 1914, three in California and one in New York, and one new mill was reported under construction in Nevada.

There were 78 active gypsum mines, including quarries and pits, in the United States in 1914, one being in Alaska. These mines supplied 68 plants in the United States. Of these 68 plants, 47 used gypsum, 11 used gypsite, nine used both gypsum and gypsite, and one reported the use of selenite crystals. Thirty-six plants obtained their material from quarries and open beds, 28 from mines, and four from quarries and mines. Seven plants produced ground gypsum only, 28 calcined only, and 33 plants ground and calcined their product. Of the 61 calcining plants, 55 were equipped with kettles, three with rotary kilns, and three with stationary kilns. There were 173 calcining kettles in operation, ranging from eight to 14 feet in diameter. The total daily capacity of all these kettles as reported was 13,919 short tons, giving an average of 80 tons per kettle.

On comparing these statistics with those of 1913, when there were 67 gypsum plants in operation, 63 of which were calcining plants and 57 of which were equipped with a total of 181 kettles, it is found from the producers' reports that there was a net gain of one plant, a loss of two calcining plants, and a net loss of eight kettles. There was an apparent loss of 425 tons in the total daily capacity, but a gain of one ton a day in the average daily capacity per kettle. These summaries do not include the equipment of several plants termed "mixing mills," which are auxiliary mills established at commercial centers, such as Chicago, Ill., Milwaukee and Superior, Wis., St. Paul, Minn., and Cleveland, Ohio. These mills do no calcining, but receive the calcined plaster and prepare it for the market in various forms by the addition of fiber, retarder, and sand.

The 61 calcining plants reported in 1914 were operated during a total of 13,298 days, and averaged 218 days per plant. Forty-eight plants worked one shift, eight plants worked two shifts, and five were in continuous operation. The average number of hours per shift as reported by 57 mills was as follows: Eight at six mills, nine at four mills, 10 at 33 mills, 11 at seven mills, and 12 at seven mills.

Keene's cement was made at five of the gypsum plants in 1914, the same number of plants reporting the manufacture of this cement in 1913.

The fuel used at 42 calcining plants was coal; oil was used at 16 plants, coal and oil at two plants, and coke at one plant. The oil-burning plants are in Arizona, California, Kansas, Nevada, New Mexico, Oklahoma, Oregon, Texas, and Washington.

Strike Ties Up New York Market.

New York, Sept. 4.—Plaster interests in this market have found a difficult situation made decidedly worse by reason of the lock-out of all union plasterers in the New York jurisdiction this week following an attempt of the unions to again introduce the steward system on all jobs employing more than ten men. There is scarcely a plastering job that is moving in all the city, although the employers said today that they expected the trouble to be of short duration.

As told in ROCK PRODUCTS AND BUILDING MATERIALS several months ago, the unions have been threatening to force the acceptance of this condition upon the bosses. The latter told them that if they insisted upon the enforcement of this provision they would be locked out and would be kept out until they made a complete backdown on their demands.

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

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FOR SALE—Second-hand Shearer & Mayer dragline cableway excavator; complete with cables for 500-foot span. One double drum 10x10 Lidgerwood engine and boiler; 1½ cubic yard excavator type bucket, carrier and blocks in good condition. Can make immediate delivery. Address BOX *1070*, ROCK PRODUCTS AND BUILDING MATERIALS.

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One 65 H. P. Atlas Steam Engine. One 25 H. P. Model and one 9 H. P. Fairbanks-Morse Gasoline Engine for sale cheap. Also steam boilers. Good condition. The BESSER MFG. CO., 102 First St., Alpena, Mich.

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FOR SALE—Best empty cement bag baler, smallest price. Also brick and block machines. Address W. BARTEN, Gordon, Nebr.

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WANTED—5 Second Hand 33" Fuller Mills. Address Box 1068 care ROCK PRODUCTS & BUILDING MATERIALS.

WANTED—Second hand 33" Fuller Mill. In replying state price and for what used. Box 1069 care ROCK PRODUCTS & BUILDING MATERIALS.

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FOR SALE—Brick plant, good location, good clay and good demand for brick. Situated on Soo Line. For further particulars address CHAS. GUENSER, Bowlus, Minn.

FOR SALE—Portland Cement Plant Complete, 1,000 Barrel Dry Process Plant, fully equipped. Will sell any part to suit purchaser. M. BRAUDY & SONS, Grand Rapids, Mich.

FOR SALE—An up-to-date Sandlime Brick plant. Running right along and in good condition. A bargain for some one. Address P. O. Box 246, Colton, Calif.

FOR SALE.

Cement Mill and 110 Acres of land, formerly of Vindex Portland Cement Company and of Reading Cement Company, near Evansville on branch of P. & R. R. R. Company. Capacity 600 bbls. per day. Suitable for producing lime fertilizer or crushing and pulverizing rock products. Large cement rock deposits, developed quarry, lime stone plentiful in neighborhood. For information or examination of premises, apply to CHAS. T. NAGLE, Sec'y. BONDHOLDERS' PROTECTIVE COMMITTEE, 916 Centre Ave., Reading, Pa.

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Cement Users

Portland Cement for Users
Henry Faija and D. B. Butler. Price $1.20. C

Cements, Mortars and Concrete
Myron C. Falk. Price $2.50. C

Reinforced Concrete
W. H. Gibson and W. L. Webb. Price $1.00. C

Hand Book of Cost, Data
Halbert P. Gillette. Price $5.00. C

Concrete Construction
H. P. Gillette and C. S. Hill. Price $5.00. C

Cement Workers' and Plasterers' Ready Reference
H. G. Richey. Price $1.50. C

Reinforced Concrete
A. W. Buel and C. S. Hill. Price $5.00. C

Concrete
Edward Godfrey. Price $2.50. C

Reinforced Concrete
C. F. Marsh and Wm. Dunn. Price $7.00. C

Practical Treatise on Foundations
W. Patton. Price $5.00. C

Concrete
Thomas Potter. Price $3.00. C

Cement and Concrete
Louis C. Sabin. Price $5.00. C

Concrete and Reinforced Concrete Construction
Homer A. Reid. Price $5.00. C

Handbook on Reinforced Concrete
F. D. Warren. Price $2.50. C

Popular Handbook for Cement and Concrete Users
Myron H. Lewis & A. H. Chandler. Price $2.50. C

A Manual of Cement Testing
Richards & North. Price $1.50. V

A Treatise on Cement Specifications
Jerome Cochran. Price $1.00. V

Manual of Reinforced Concrete and Concrete Block Construction
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Geo. P. Carver. Price $0.50. C

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Edwin C. Eckel. Price $6.00. C

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Concrete Factories
Robert W. Lesley. Price $1.00. C

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Richard K. Meade. Price $4.50. C

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Wm. M. Torrence and others. Price $1.50. C

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W. Purves Taylor. Price $3.00. C

Foundation and Concrete Works
E. Dobson. Price $0.60. C

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John P. Brooks. Price $2.00. C

Concrete and Stucco Houses
O. C. Hering. Price $2.00. C

Concrete Costs
Taylor-Thompson. Price $5.00. C

Architects and Engineers

Building Construction and Superintendence—Masonry Work
F. E. Kidder. Price $6.00. C

Theory of Steel-Concrete Arches and Vaulted Structures
Wm. Cain. Price $0.50. C

Concrete Country Residences. Price $1.00. C

Graphical Handbook for Reinforced Concrete Design
John Hawkesworth, C. E. Price $2.50. C

Theory and Design of Reinforced Concrete Arches
Arvid Reuterdahl. Price $2.00. C

Treatise on Concrete, Plain and Reinforced
F. W. Taylor and S. E. Thompson. Price $5.00. C

Concrete Steel
W. N. Twelvetrees. Price $1.90. C

General Specifications for Concrete Work as Applied to Building Construction
Wilbur J. Watson. Price $0.50. C

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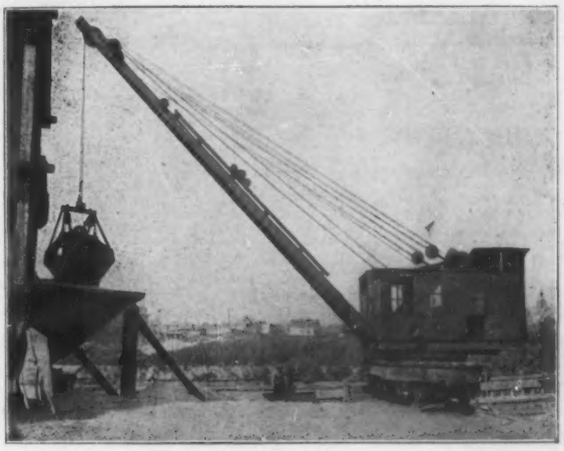

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Power & Mining Mach. Co.

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Haiss Mfg. Co., Inc., Geo.
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McMyler-Interstate Co.
Osgood Co., The.
Sauerman Bros.
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Improved Equipment Co.
Thornton Fire Brick Co.

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Ceresit Waterproofing Co.

FURNACES FOR SPECIAL PURPOSES.
Improved Equipment Co.

GAS PRODUCERS.
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Link Belt Co.
Stephens-Adamson Mfg. Co.
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Lewiston Fdy. & Mach. Co.

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U. S. Gypsum Co.
Plymouth Gypsum Co.

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Cardiff Gypsum Co.
Carolina Portland Cement Co.
National Mortar & Supply Co.
Ohio & Western Lime Co.
Plymouth Gypsum Co.
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Wheeling Wall Plaster Co.

HAIR.
Ohio & Western Lime Co.

HOISTS, ELECTRIC AND STEAM.
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Link Belt Co.
Haiss Mfg. Co., Inc., Geo.

HOLLOW CLAY TILE.
American Clay Co.
Metropolitan Paving Brick Co.
Vigo-American Clay Co.

HYDRATING MCHY.
Atlas Car & Mfg. Co.
Kritzer Co., The.
Miscampbell, H.

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Kelley Island Lime & Trans. Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
Owens & Son, John D.
Scioto Lime & Stone Co.

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Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
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Chain Belt Co.
Haiss Mfg. Co., Inc., Geo.
Jeffrey Mfg. Co.
Link Belt Co.
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Sykes Metal Lath & Roofing Co.
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Pierce-Arrow Motor Car Co.

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Calvert Mortar Color Wks.
Ceresit Waterproofing Co.
Chattanooga Paint Co.
Gordon-Hittl Co.
Ricketson Mineral Paint Co.
Williams, C. K., & Co.

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PLASTER.
See Gypsum.

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Plymouth Gypsum Co.
U. S. Gypsum Co.

PLASTER BOND.
Ceresit Waterproofing Co.

PLASTER MCHY.
Butterworth & Lowe.
Dunning, W. D.
Ehrsam, J. B., & Sons Mfg. Co.
Miscampbell, H.
Williams Pat. Crusher & Pulverizer Co.

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Reynolds Asphalt Shingle Co.

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Allis-Chalmers Mfg. Co.
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QUARRY CARS.
See Cars.

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Austin Mfg. Co.
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Union Sand & Material Co.

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Amer. Clay Machy. Co.

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